EDUCATION.

No. IV.—March, 1884.

THE NATION, THE ONLY PATRON OF EDUCATION EQUAL TO THE PRESENT EMERGENCY.

BY GEN. JOHN EATON, WASHINGTON, D. C.

Since the days of the great George Mason, of Virginia, there have never failed to be patriots who believed that African slavery was a peril to our institutions. They sought for peaceful remedies, and when the great and terrible war burst upon the land their conscience did not forsake them; they stood by the country and saved the Union. Nearly twenty years have passed since the declarations of universal freedom; and the slavery of ignorance remains with all its perils. Joy is increasing in all the land that man no longer has property in his fellow-man; yet we must confess that the evils threatened by African slavery are only partly averted. The millions in ignorance are not free as American liberty must make free; their ignorance invites idleness, vice, crime, and petty demagogism to become their masters, and by ruling them to assail the foundations upon which rests the very citadel of our liberties.

We are among those who believe in all the possibilities of our destiny for our posterity and for the other nations of the earth; but we know that a house divided against itself cannot stand. Intelligence and virtue are ready now, as always, for the defence of our freedom against all the hosts of ignorance and evil. At this point in our national affairs the irrepressible conflict remains. We desire to consider how it may be terminated by measures of peace and moderation, and not eventuate amidst future generations in another catastrophe more dire and calamitous than our own civil war. We

offer no Utopian scheme. We do not come as destructives, purposing to tear down everything; we do not propose to arrest the growth of our institutions; but we invoke greater activity on the part of all the great agencies that enlighten, or mold, or preserve society for good.

Among the foremost of these is the family; and where outside of the borders of America is there a larger proportion of families to the whole population? Where have the better aspirations and forces of the family equal opportunity? All the possibilities of American citizenship are before every child in the American family. How many hallowed home influences guard the life of infancy, train its earlier activities, mold its power to high purposes and noble action! But, alas! how many homes are broken up by the death of father or mother, or by the weakness or criminality of the parent, and childhood's tender years exposed to the perils of orphanage or thrust into the midst of vice and crime! Society, in its benevolent action, already counts these children by tens of thousands. That noble effort of Brace and his coadjutors in New York alone has taken over 60,000 from the perils of city streets to the safeguards of country homes. Our reform schools and orphan asylums give most appalling testimony to the aid our home-life requires, and show the disproportionate increase of neglected children. The provision of summer parks, summer excursions, and infant sanitaria are beautiful efforts to do what so many families cannot for their children. All the efforts of organized and enlightened charity are not equal to the demand. Amid vital statistics everywhere, Rachel mourns her infant child. Nearly half the children die in infancy, and come not to the chances of future good and evil.

Near the family is the church, that other divine institution, established for man's enlightenment in his duties to God and to his fellow-man, and for the conservation of the best interests of society. For this great institution, too, this assembly invokes greater activity; and we believe that the American church is not hindered but quickened to greater power in its separation from the State; we believe thereby it occupies an ideal position toward which its wisest adherents the world over would have it move as the sphere in which it may most serve man and honor God. Where else has the church greater respect, or more power over the consciences and lives of the people? Where else has its press and pulpit greater influence? Where besides, in the same length of time has it garnered a richer literature? Where are its schools on the Sabbath more effective? And yet, according to the last well-authenticated figures, their mem-

bership numbered only about seven millions and a quarter. In what nation under the heavens have its schools for all grades more freedom and gained such endowments, or given promise for greater future triumphs?

The schools of theology, including Catholic and Protestant, number 142; have 633 professors, 5,242 students, and have invested in buildings and grounds $6,221,607. The productive funds of the Protestant schools amount to $8,537,683, and yield an income of $576,897. All the investments in all forms for instruction in the professions of law and medicine bear no comparison to these figures.

But the churches have achieved far greater results in the provision of college instruction for men and women. Of these institutions announced as belonging to one or the other denomination of Christians, Protestant or Catholic, there are 438, with 4,543 professors and 60,947 students. The value of their buildings, grounds, and apparatus is $31,898,510; the amount of their productive funds is $23,403,945, yielding, together with tuition, a reported income of $3,068,554. In this connection it is interesting, however unsatisfactory, to remark that the productive funds invested for the education of women are not one-fiftieth of the amount similarly invested for the college education of men.

Of that other grade of institutions established for secondary instruction, such as high-schools, academies, and preparatory schools, there are reported under denominational control 837, with 4,205 teachers and 73,770 students, owning in buildings, grounds, and apparatus $10,779,334, and having in productive funds $1,684,359.

In these three classes of schools,—those of theology, and those for secondary and superior instruction,—we find the grand total of 139,826 students, and an investment in property and productive funds amounting to $82,195,728.

But we must pass to another great and special work of the churches. Rejoicing in the American Sabbath for man's rest and freedom to worship, the several religious denominations acknowledge it to be their special responsibility on that day to preach the gospel of man's redemption. Learning and eloquence may well rejoice in the power of their pulpits. The multitudes whose attention they command in places of worship no cursory glance can number, but our purpose requires a nearer view. We have not the data expected from the great census of 1880; but, on the supposition that the ratios for the decade, 1870–1880, are substantially the same for the increase of population and for the extension of church work, the following statistics will be sufficiently accurate for our argument.

Great as is the Sabbath worship on the first impression, allowing that there are now 28,170,000 sittings in the church edifices of all the various denominations, there would be required 21,830,000 additional sittings to accommodate the total population of 50,000,000,[1] which, at an average expense of $12 per sitting, would cost $261,960,000. To supply the preachers required, at the usual average of one to three hundred and seventy-five persons, there would need to be an addition of 58,213 clergymen. Now should the churches undertake to give these men a preparation of only three years, at present rates of aid and with present facilities, it would cost, over and above all that the young men could do for themselves, at the rate of $100 per year for each individual, $17,463,900; and their first year's salary as preachers, should they be able to live on an average of $500, would demand for its payment $29,106,500. The total of these three items for the supply of the preached gospels to all of our 50,000,000, not now having sittings, would cost $308,530,400.

Another special means of promoting religious progress is the circulation of books, newspapers, and especially the Holy Bible. Great and excellent as is this service, as now rendered, how many hundreds of thousands of souls are unreached by either agency! It would require a circulation of 10,000,000 of religious papers to furnish one to each family. When the spirit of American civilization invites religious organizations to a work so vast, so far beyond their present means and efforts, so out of proportion to all that they are undertaking, would there not be somewhat in the nature of the cruel or absurd to demand of our churches, as some would do, that they should assume the entire control of the education of the people in all its forms under all conditions? Or would the idea of those who advocate exclusive church direction of education limit that great work to a few, or to the ruling classes, or to those who could pay,—an idea consistent only with the great illiteracy and degradation of the masses.

We believe our New England fathers wisely sought a better way. Studying profoundly in the light of the divine word all the data in human experience that they could command, they finally discovered and accepted their well-known principles of separation of church and state, liberty, and rights of conscience and person and property. They also became convinced that the preservation of these principles which they so dearly cherished could be assured only by the training of the young, to whom they were to be committed, and that this education could only be made universal and sufficient for a free peo-

[1] No attempt is made here to take into account the increase of population in the last two years, or other variations, such as the number who might stay at home by reason of age or sickness, which would be possible with greater space.

ple by that other institution, the State, which they cherished as divine while announcing its total separation from the authority of the church. They welcomed all voluntary action by the family and by the church, and we have seen how conspicuous the results attained; but they wisely committed not to the church, with its manifold divisions, but to the State in which only resided the power that could touch all the people and tax all the property within its borders, the guarantee of the education of all the children. So they expected the family to teach justice; so they expected the church to enforce justice between man and man: but they reserved the guarantee of this justice to the civil organization in which was embraced the entire community. Thus they expected the family and the church to do their utmost for the education of society; but the final assurance, the absolute guarantee of this education, supremely necessary to the continuance of free institutions, they laid in the very foundations of civil government. Their conceptions and practices have so commended themselves to American lovers of liberty that in every State, and in every territory that has any law, there are legal provisions for the public education of the children.

The schools of the people, the common schools, are justly and widely regarded with the profoundest interest. Foreign statesmen and publicists have not looked into them in vain for the sources of many of the excellencies of American life. May it be always and everywhere true, as the great Webster was able to testify to an English inquirer, after saying that he had been familiar with the New England system of free schools for more than fifty years, and avowing his hearty approval when he declared: "I owe to it my own early training. In my own recollection of these schools there exists to this moment a fresh feeling of the sobriety of the teachers, the good order of the school, the reverence with which the Scriptures were read, and the strictness with which all moral duties were enjoined and enforced. In these schools, or it may be partly by my mother's care, I was taught the elements of letters so early that I never have been able to remember a time when I could not read the New Testament, and did not read it. Many moral tales and instructive and well-contrived fables, always so alluring to childhood, are still perfectly preserved in my memory. And in my own case I can say that, without those early means of instruction, ordained by law and brought home to the small villages and hamlets for the use of all their children equally, I do not see how I should have been able to become so far instructed in the elements of knowledge as to be fit for higher schools. In my opinion the instruction communicated in

the free schools of New England has a direct effect for good on the morals of youth. It represses vicious inclinations; it inspires love of character; and it awakens honorable aspirations. In short, I have no conception of any manner in which the popular republican institutions under which we live could be preserved, if early education were not freely furnished to all by public law in such forms that all shall gladly avail themselves of it. . . . I may be permitted to add that, in my judgment, as the present tendency of things almost everywhere is to extend popular power, the peace and well-being of society require at the same time a corresponding extension of popular knowledge."

The favorable side of this public school system cannot be contemplated without gratification. In every State, by the provision of a State university or an agricultural college, the ladder of learning, with its foot standing in the gutter, invites every child, step by step, by a free course to the highest instruction. The conception of the theory is an honor to the human mind. None are excluded; every one is invited to some measure of instruction, be he sound in health, or be he feeble-minded, or deaf, or dumb, or blind. What blessings are offered to the poor! Here is a family struggling for subsistence, and has no money to pay a penny for the instruction of its children that, perhaps, number four,—one, of a sound mind, goes to the public school, and on, if he has the capacity, through the collegiate course, and is capable of high trusts and responsibilities; the second, an idiot, is taken to the school for the feeble-minded, and becomes self-supporting; the third is blind, and the State provides him the school; the fourth is deaf and dumb, and the State offers the school and the Nation the college. It is a glory of American law that what is left elsewhere to charity, for these unfortunates here has the certainty of public administration.

Why should we not, glancing over the annual result of educational work in the country, congratulate ourselves that there are 48 schools of law, with over 3,000 students; 120 schools of medicine, with 14,000 students; 364 universities and colleges, with nearly 60,000 students and $83,000,000 in property and funds; that there have been bestowed in the last ten years over $61,000,000 by private persons of wealth for education; that there are 220 normal schools, with 43,077 students, with annual public appropriations of $872,726; and that annually there are nearly 10,000,000 of children in attendance upon the public schools, and an expenditure of $80,000,000 from the public treasury.

But we must not pause here; we must look at the reverse side.

New England to-day has but one college student, male and female, to every 157 families, whereas at the end of the first twenty-three years of New England history, or when there were 20,000 souls all told in the settlements, there was one university graduate to every forty families. May we not say, hence such wisdom in laying the foundations of those States. When will the educated classes anywhere attain the same relation to the whole body of the people? Against the attendance upon the public schools there is the non-attendance of 5,754,759. Allowing that these odd hundred thousands are in private schools that are not reported, there remain 5,000,000 children of school age untaught. To furnish these sittings in buildings, at the usual average of $20 per seat, would cost a hundred millions in money. To furnish them teachers, would require an increase of 30,000 of the teaching corps, and a single year's preparation of these teachers, at the average rate in New York normal schools, would cost over a million of dollars, aside from other expenses incurred by each person. The pay of these 30,000 additional teachers for one year of ten months, at the rate of $32 per month, which is the average throughout the country, would amount to $9,600,000; add to this the items for preparation and school-house sittings necessary for the supply of these non-attending school-children, and you have a grand total required for the first year of $110,000,000.

There has been an attempt to raise a laugh at the proposition of Hon. Senator Logan to appropriate $60,000,000 in aid of education; but I give you here figures which cannot be invalidated, showing that his proposition falls $50,000,000 short of the sum which would be required to furnish all our school-children now out of school sittings and teachers for a single year. Mr. Senator Blair, in his examination of this point, in his recent speech, considering that Texas has a school-period of only six years, states if the school-life were properly lengthened in that and other States, the present reported school population of 15,302,862 would be increased to 18,000,000. But you are aware that the legal school age is hardly the same in any three States, and while the school year is ten months in some, it is only two or three months in others. The proper increase of the school age would add greatly to the school population to be taught, and thus to the number of teachers required, while the proper addition to the number of days taught in the year would proportionately increase the expenditure for instruction.

In our cities we are accustomed to expect the best teachers, best school-houses, best methods and best supervision; but laws making attendance obligatory and a sufficient number of sittings and teachers

are wanting, and on an average two-fifths of the children are not enrolled in the schools. Here are forced upon us the terrible problems encountered in older civilizations and more dense populations. These deficiencies, moreover, are not equally distributed through the entire country, but are mainly concentrated in the Southern States, where the late war left the most disastrous effects. The white people were impoverished, and the colored people entered upon their liberty in total destitution. The setting up of the public-school system was one of the crucial tests of the revolution that was transpiring, and was one most obnoxious to the whites generally. All their antecedent notions rose up against it, but in spite of the prevailing poverty, and indifference or opposition, the public-school idea has made progress.

The sixteen States and the District of Columbia, where slavery prevailed, having a total school population of white children of 3,899,961, had, in 1880, 2,215,674 whites enrolled in schools, and with a colored school population of 1,803,257, had 784,709 blacks enrolled, and expended $12,475,044. This money, it should be remembered, is divided per capita, with substantial equality, without distinction of color, in all the States excepting Kentucky and Delaware. In the former State a new tax levy is proposed, which shall be divided equally, and in Delaware two thousand dollars are now appropriated for the colored schools.

In considering the local necessities of the South, embarrassed by the ignorance of the colored population, it should not be forgotten that there are now conducted for the benefit of the colored people 44 normal schools, with 7,408 students; 36 schools for secondary instruction, with 5,237 students; 15 universities or colleges, with 1,117 students; 22 schools of theology, with 800 students; 3 schools of law, with 33 students; 2 schools of medicine, with 87 students; and 2 institutions for the deaf, dumb, and blind, with 122 students. These institutions for higher instruction are mainly due to the benefactions of Christian benevolence, and it is claimed by the several denominational agencies at work that they have expended in this direction some $10,000,000. In the same regions it is known that the Nation expended through the Freedmen's Bureau, in behalf of education, $5,262,511. Here, too, the great Peabody benefaction has been at work, with rare skill, aiding in educating both blacks and whites, and has expended $1,191,900; and now the Slater fund of $1,000,000 is provided to give greater efficiency to the education especially of the blacks.

Why have the benevolent of all classes; why have the friends of

humanity, of order, of law, of progress, been so profoundly moved by anxiety; why have the consciences of so many people been urging the provision of education for these people? The question is one we cannot pause to answer. One thing is clear,—they have sought no harm to either race; they have not acted in antagonism to any of the great agencies for the renovation and blessing of society, the family, or the church, or the cities, or States of that region; but their great work has been in relieving burdens that would paralyze these agencies, and in bringing to their aid that instruction and training, those precepts and examples, that higher and better life on the part of every man, woman, and child affected by their influence. They believe profoundly that,—

> "Lust and avarice and anger
> Creep in the black jungles of man's ignorance."

In their studies of social science they read the story of "Margaret, the Mother of Criminals," wherein appear the results of neglecting a single family living on the outskirts of a New York village. In seven generations there were 709 descendants, of whom, according to the careful investigations of Mr. Dugdale, 280 were adult paupers, 140 criminals and offenders (guilty of seven murders, theft, highway robbery, and nearly every offence known in the calendar of crime). These descendants cost society for their support or punishment $1,308,000, "without reckoning," as Mr. Dugdale observes, "the cash paid for whiskey, or the entailment of these evils upon posterity, or the incurable disease, idiocy, and insanity growing out of their debaucheries, and reaching further than we can calculate."

Amid these masses of figures you will not expect me to give the statistics showing the depreciating influence of ignorance upon agriculture, upon the mechanic arts, upon commerce, upon all of the great activities by which society exists; nor will you expect me to trace in detail the share that ignorance, as a separate factor, has in the degradation of the pauper classes, or in the increase of criminality and their cost, or in the propagation of disease, and in the increasing insecurity of health and life; but I cannot dismiss this vast ignorance which we have contemplated without a word in reference to its possible political evils. Omiting any reference to the influence of illiteracy during minority, or any bearing of the illiteracy of the female adults, the late census shows us that there is a great army of 1,908,310 adult males or voters who cannot write, — an army nearly double that ever in the field during the late deplorable civil war. You will certainly excuse me from any delineation of the horrors of the

devastation that might follow their united and concentrated efforts against the peace and order and well-being of society. I simply call your attention to what may be the injurious effect of their silent action as voters at the polls. In each of twelve States there are more than one hundred thousand of these voters, and in eleven States these illiterate voters outnumber the votes cast by either of the political parties in the last presidential election; thus, should they unite under one infatuated leader, they would have absolute control of State legislation, of the State offices, and of the election of twenty-two members of the United States Senate and of all the members of Congress from those States. Again, running down the columns of these direful and alarming figures, and taking into account the votes of political parties in the same election, we find that in all but five States in the Union there are enough of these illiterate voters, by their united action, to have reversed the result of that election in each of these States, whatever it was. The press and public mind are occupied with questions of tariff, questions of capital and labor, questions of corporations and private rights. Do they sufficiently consider what material these ignorant masses offer for the destructive explosions that have occurred in connection with these questions? Does the press consider that none of its information, none of its pleadings, none of the considerations it presents, can be read even by the 6,001,745 illiterates ten years old and over, and that all its voices of warning and instruction fall for them on deaf ears?

Before passing from this class of considerations, you will pardon me for reminding you that many of our intelligent people show an indisposition to participate in political action, and that generally the more ignorant can be rallied to do what their leaders desire; and, in the light of this fact, I beg to turn to the *Tribune Almanac* for 1882, and, after adding up the column of votes cast, to draw from it the number whose votes were not cast or were not counted in the last election; the result gives a total in all the States of 1,795,568, or more than half of the number who voted on either side, and, as a rule, numerous enough in each State to have reversed the result of the election.

No summary of points of special interest in education from a national view should omit the condition of education in the territories. Here we are confronted with the Indian problems, all of which it is easy to be seen could be speedily solved if the 60,000 Indian children should be educated for a few school generations. In the territories, too, are the children of the 30,000 Alaskans without legal provision for their education; here, too, is the large Spanish and substantially

foreign population of New Mexico, with little or no provision for instruction in the English language or American thought. Then, too, the 150,000 polygamists, who, in the face of the Edmunds Bill, are said to have increased this year ten per cent. by immigration from foreign countries, have children that especially need efficient schools conducted in the American spirit. Over all these questions in the territories Congress has supreme, unquestioned control. Besides, if we are to receive annually, as last year, a total of three-quarters of a million of people of diverse nationalties, though they have only fourteen per cent. of illiterates, all should be surrounded with the institutions and sources of information that may aid them in conforming to our ideas and customs, and there should be no lack of school privileges for their children. Again, what shall the children do, in the absence of apprenticeship, to give skill and character to handicraft? is asked in every educational discussion. The Nation has endowed a college of agriculture and mechanic arts in each State; and these institutions are all, with a measure of merit, but with varying success, making their contributions to the solution of the problem of industrial education. But the needed elementary aid is yet wanting.

Passing from point to point thus abruptly along these outline views that open here and there into vast vistas that we have no time to study, allow me to ask, What are you going to do about it? Will you allow the ship of state to float on as she is, trusting that she and all she carries is safe so long as we hurrah loud enough and display plenty of bunting? Shall we leave the care, the anxiety, to the agencies now operating, those that we have enumerated, and the great voluntary activities of temperance, and science, and reform? Have we not seen how each, and finally all, of the agencies are unequal to the task of universal education, which, like spring, shall leave no corner of the land untouched? Has there not been in our hearts and on our lips one great patron, the Nation, not yet sufficiently invoked, but the only one equal in power and ample in means to meet the present emergency, — not by displacing or by controlling either family, church, or State, or voluntary activity, but by its patronage, by its moral influence, by a reasonable disbursement from its treasury, accompanied only by conditions that shall make its expenditure honest and efficient? This is the patron whose aid given to the States would lift the burdens impossible for all the other agencies to bear, and by its aid stimulate them to greater endeavor by assuring their hope of success.

Clearly this aid by the General Government to education can do no violence to that constitutional provision which authorizes Congress

to act for the general welfare, and under which so many millions have been so freely voted to roads, rivers, and internal improvements. The policy of this aid accords with the traditions and practices of the Government from its foundation. Out of it came the great grants of land to common schools and to universities that have had such incalculable influence upon the destiny of the newer States. In accord with it, too, was that wise grant in aid of colleges of agriculture and mechanic arts. The General Government is the largest patron of science. Under it more researches are conducted than under any other agency among us. For the enlightenment of the citizen it carries on one of the largest printing establishments in the world. Its aid in the establishment of libraries reaches millions of dollars. This sending abroad of light and knowledge to every nook and corner where the citizen lives is not the centralization of power, but the reverse. It aids every locality to judge and act intelligently for itself. Further, the General Government aided the establishment of the first institution,—that at Hartford,—for the instruction of the deaf and dumb, and has crowned all the institutions of that class in the several States by that noble one, the Deaf Mute College at Washington, the first of its rank in the world, be it said to the honor of American statesmen. When the blind had in vain sought aid in obtaining literature elsewhere, the General Government gave a permanent fund of a quarter of a million for a printing house for the blind, and those in every congressional district may have the benefit.

In 1836, when the national treasury was more than full, a surplus of over $20,000,000 was disbursed among the States, receiving it as a loan, and in a number of instances was used by them to increase their school funds,—thus promoting that revival of education which was then arousing the indifferent and overcoming the hostile, and specially contributing to the preparation of the generation which saved the Union.

Only the General Government can do justice to all the interests affected by that great river, the Father of Waters; only the General Government has been found equal to cope with that terrible plague, the yellow fever. So only can the Nation meet the greatness of the present emergency by adequately aiding existing agencies, and enable the people to cope with the plague of ignorance, more fatal to human good than any leprosy which can assail the body.

Besides, we must not forget that the Nation, by the older constitution, must guarantee to each State a republican form of government, and by later provision we are aware that the Nation has assumed to protect the citizenship of those formerly slaves. And do we not

know, if the theories are sound on which rest our institutions of freedom, that, in the execution of either of these trusts, the Nation would in vain marshal armies till they were as oppressive as those of the old world, and that equally in vain it would add statute to statute, if the people themselves,—the people resident in the locality in peril,—do not possess or do not acquire that intelligence and virtue without which a republican form of government and the enjoyment of American citizenship are absolutely impossible?

It was the belief of the fathers, and it is a truth by which we must abide, that the free, intelligent choice of the people is our only safety. If the Nation may use its navies and armies to guarantee this safety and fail, as it must if no other means are employed, may it not rightfully, at least as a generous patron, bestow the means to aid the States in building school-houses or in paying teachers, whereby the people may be so enlightened that they shall come of their own free will to know, cherish, achieve, and defend this result. Is not the great patriotic thought and the increasing anxiety for the republic strongly gravitating to this conclusion, and pointing to our national statesmen as the men on whom the final responsibility for adequate action rests?

The fathers of the republic, before they had gone the half of twenty years, saw the defects and weaknesses of their first action, and achieved their greatest triumphs of statesmanship in a careful revision of their first steps and in giving affairs a new departure. Have not our statesmen, in the great changes of the last twenty years, seen the imperative need of another revision, and discovered the opportunity by giving to universal suffrage the guarantee of universal intelligence to add new assurances to the prosperity and continuance of our liberties and new glories to American statesmanship? Then shall

> "Columbia, Columbia, to glory arise,—
> The queen of the world and the child of the skies;
> Thy genius commands thee, with rapture behold,
> While ages on ages thy splendors unfold."

APPLICATION OF THE PRINCIPLES OF PSYCHOLOGY TO THE WORK OF TEACHING.

BY JOHN E. BRADLEE.

ANALYSIS.

Introduction.—Importance of the subject.

I. Nature of the Mind.

II. Distribution of the Mental Powers.

III. Psychological Principles which Apply to the Work of Teaching.

1. The intellectual faculties are distinguished from each other by the order of their development.

2. The activity of the higher powers is conditioned upon the activity of the lower.

3. The mind tends to repeat its activities.

4. The best attention is that which is given spontaneously.

5. The mind naturally proceeds from the specific to the general, and from the concrete to the abstract.

6. The learner should advance from the simple to the complex.

7. The mind should be conducted to the unknown through the medium of the known.

IV. The Practical Work of the Teacher.

1. Remarkable progress made by the child before the school age is reached; schemes for continuing it; Pestalozzi; Froebel; Use and Misuse of Object-Lessons; Necessity of toys to the child; Summary of aims in Primary Teaching.

2. Training the Senses; Forming Habits of Observation.

3. Order of Studies; Can Study be made Attractive? Bain's View; The Opposite Opinion; The Love of Knowledge; English Grammar; Arithmetic, The Elements of Science and Natural History.

4. Training the Memory.

5. Importance of Language Studies.

6. Formation of Habits of Independent Investigation.

V. Concluding Observations.

1. The qualities of mind and character which are required by the scholar must be in the teacher.

2. Alternation of work should be provided for.

3. The teacher must study his pupils.

ESSAY.

The mind is self-active. Whatever influence is to be exerted upon it by educational processes must be in accordance with its nature and laws of growth. These must be clearly apprehended if we would avoid friction and waste in our efforts to train it to its highest perfection. It is not a storehouse to be filled; it is not a machine to be

est in motion; it is not an organism to be vivified. It is a spiritual principle already putting forth its own energies, and working out its own ends, when it first comes within the reach of the educator. He adds to it no new powers, and he can modify and augment its activities only by furnishing the materials and supplying the normal conditions of growth. The mistakes and shortcomings of modern education can largely be referred to a false philosophy. Verily, he who would train the mind must understand its nature. Not more obviously should the musician possess a knowledge of the instrument upon which he is to play, as well as the music to be performed, than the teacher should understand the mind which is to be instructed as well as the subjects to be taught.

I. In order to make an intelligent application of the principles of psychology to the work of teaching, we need to inquire first concerning the nature of mind itself. We hold that it is a spiritual principle, exerting its energy in various forms and through a material organism, but that all these manifestations are the products of the same indivisible, spiritual agent. While we admit that the soul is developed along with the powers of the body, and is dependent upon them for much of its knowledge and energy; while we admit that it is only known to our senses in connection with the material structure which it inhabits, we still maintain that it is a spiritual entity, and is to be trained and developed by spiritual agencies. Not only does the soul receive its impulse to action from within, urged on by its own energy, while matter is of itself inert; not only does it distinguish itself from matter, and even from the bodily organism which it employs, but its phenomena are totally unlike those which pertain to matter. This is a point of prime importance. Materialistic philosophy has always tended to artificial and materialistic methods of intellectual cultivation, and one leading authority has even affirmed that, as all mental activity consists in molecular changes, we have, therefore, in order to produce the highest and most perfect mental development, only to train each muscle, nerve, and cell to its fullest activity by physical exercise. We repudiate all such doctrines. Whatever the importance of a sound and healthy body, and we would by no means underestimate it, a trained and disciplined mind is quite another thing and is obtained in a very different way.

II. We pass to inquire, then, what are the powers of mind which the teacher is to develop. All the mental activities may be classed under three divisions, — the Intellect, the Sensibility, and the Will. Under the first of these are comprehended all the processes of thought and knowledge, commonly designated as the perceptive, the repre-

sentative, the elaborative, and regulative faculties. Under the Sensibilities are included the emotions, affections, and desires, and under the Will the choices and volitions. No education can be complete and symmetrical which does not provide for the training and refinement of the mind in each of these distinct modes of activity. Each has its own distinctive and characteristic phenomena, and obeys certain fixed laws. Our efforts at mental training must always be in accordance with these laws, and should be adapted to stimulate the form of activity desired.

III. What are the psychological principles which apply to the work of teaching?

1. *The intellectual faculties are distinguished from each other by the order of their development.* First the presentative or perceptive faculty is called into exercise; next comes the representative, then the elaborative or discriminating faculty, and last of all the regulative faculty. It is not asserted that one of these will attain its perfect development before another form of activity appears; but that, in any young person, the first will have reached a higher stage of development than the second, and their progress towards maturity will be in the order indicated. The senses will be found to be perfectly developed in a child ten years of age, and the perceptions, though often incomplete, will be clear and distinct, while his power of generalizing and logical inference will be very crude and feeble. The growth of a child's mind is like the opening of a flower,—one after another its faculties unfold and expand under favorable influence. It is impossible to reverse this order, and to attempt to do so in our educational work is like tearing open the bud in a vain attempt to produce a premature blossom.

2. *The activity of the higher powers is conditioned upon the activity of the lower.* Representation necessarily employs the materials furnished by presentation; judgment, comparison, abstraction depend upon tributary acts of the faculties which precede them. In other words, imperfect and feeble activity of the lower powers will vitiate and weaken the processes which succeed and are above them. Thus people often arrive at false conclusions because of insufficient observation, and the imagination may be dwarfed in its development by the exclusion of those subjects which should furnish it with its appropriate materials. As the tree is invigorated by watering its roots, so whatever nourishes and exercises the lower mental powers will eventually stimulate and exalt all which are above them.

Moreover, it is a law of the mind that the feelings and will can only be reached through the intellect. Would we persuade a man to

adopt a certain course of conduct, we seek to influence his will by arousing his feelings; and these in turn are enkindled by the intelligence. Knowledge precedes feeling, and feeling precedes action. Impassioned appeals are sometimes made to people to be interested in a philanthropic movement. A more philosophical, as well as a more effective way, would be to furnish the understanding with facts and arguments adapted to awaken their interest. A child cannot like a study simply because he is told that he should do so; nor can he apply himself vigorously to that in which he feels no interest. But let facts or objects fitted to stimulate his curiosity be presented, and it is wonderful how quickly his emotional nature will respond.

3. *The mind tends to act again in the same way, or in a similar way to that in which it has acted before.* Whatever it has done once it inclines to do again, and with an ever-increasing facility. "Custom makes all things easy." This disposition of the mind to repeat its activities has been ably shown by President Porter to be the ultimate principle of the association of ideas, and to be identical with the law of habit. Every act of the mind is complex, and when from any cause one of the original elements is again present to the consciousness, it will tend to recall the other elements till the entire original act will be reproduced. Hence the importance of repetition, both to fix facts in the memory and to acquire facility in mental processes. So, also, in the formation of habits,—whether mental or moral, whether good or bad,—the same fact of repetition, joined perhaps to certain original aptitudes, is the moving cause. Mankind, one and all, tend to repeat their activities.

In this inclination of the mind to reproduce its actions, two subordinate and opposing tendencies appear. The first is to narrow the range of the activity till it becomes mechanical and runs in a groove. Children often illustrate this liability in committing to memory; and men, whose employment necessitates a concentration of the attention on one operation, often seem to lose the power to perform any other. On the contrary, the recurrence of the thoughts to certain topics, judiciously permitted, not only increases the vigor of the mind, but also discovers an importance and significance in some great principle, r truth, not at first apprehended. Thus Newton dwelt upon the subject of gravitation till it possessed for him a sublime significance which it has perhaps had for no other person. No small part of self-culture depends upon a judicious guidance and control of this proneness of the thoughts to repeat themselves. Wisely employed and regulated, it makes one a philosopher or inventor; misdirected, or passively indulged, it renders its victim an imbecile or a "crank."

4. Closely related to this law of repetition is another ultimate fact of mental science which has an important bearing upon the philosophy of education. It is, that *the best attention is that which is given spontaneously.* This is preëminently true of children and youth who possess the power of voluntary attention in a very limited degree. That which excites in them a natural interest, they will understand and remember; that which possesses no such interest for them, is imperfectly apprehended and quickly lost. Hence the importance of such a presentation of knowledge as shall win the attention and afford pleasure. But in the case of those subjects which do not readily appeal to the interest or preference of the learner, nature has also provided that repetition and familiarity shall make attention easy, if not spontaneous. When Henry Ware was in college he wrote in his diary, "*Resolved*, That I will give more attention to the mathematics, for I half suspect I do not like them;" and one of the finest Greek scholars in America testifies that at first he had no aptitude for Greek and a strange repugnance to the study. In most cases a judicious and attractive presentation of subjects of knowledge, aided by repetition, will secure a strictly spontaneous attention; and, consequently, remembrance, curiosity, and even wonder, are easily aroused in the young, and quickly assert their power in compelling the mind to solve the mystery presented. The aim of the teacher, as well as the writer and public speaker, ought always to be to present thoughts in such a way as to secure attention with no conscious effort of the will.

5. *The mind naturally proceeds from the specific to the general, and from the concrete to the abstract.* As with the race, so with the individual, progress in knowledge must be by painstaking observation and comparison of phenomena, slowly reducing them to system and evolving their laws. Facts must precede explanations. "The mind," says Herbert Spencer, "like all things that grow, progresses from the homogeneous to the heterogeneous; and a normal training system, being an objective counterpart of this subjective process, must exhibit a like progression. We must proceed from the single to the combined in mastering each branch of knowledge; the mind must be introduced to principles through the medium of examples." We must first apprehend individual objects, and note their resemblances and differences, before we can proceed to analyze or classify them. Thus each science has been evolved from its corresponding art, and the philosophical stage of thought must be preceded by the empirical. And what is thus true of the race and of each individual, in the gradual unfolding of the capacity for generalized thought, is also

true of the mind's progress in the mastery of any new subject. It takes it in detail, grasping first one fact and then another, till it is prepared to reduce its body of knowledge to unity and system. This impulse of the mind to separate a subject into its individual elements in order to study them in detail has not always been recognized, and serious error has resulted. A broad, general principle is sometimes laid down, and examples are then cited under it. In Nature's method the illustration always precedes. Individual objects, phenomena, and experiments come first; afterward, with many a correction and amendment, we reach the broad, comprehensive, and beautiful law which governs them.

6. *The learner should advance from the simple to the complex.* The points most easily apprehended should be presented first, and only a few facts should be given at a time. Let the mind have ample opportunity to thoroughly grasp and assimilate them before more are presented. It thus gains the power to appropriate other and more difficult statements. This law, which seems almost too obvious to require enforcement, has often been misunderstood and misapplied. In one point of view, nothing is so simple as first principles; in another aspect, they are often profound and obscure. Thus groups of facts, or phenomena, are often included under a comprehensive statement which is said to be their law. Every science thus has its laws, or "first principles," which are grand and simple embodiments of numerous and varied facts. To the man who has observed and reflected upon these facts, such principles are simple; but to the child who has not thus advanced in orderly progression, they are utterly unintelligible. Such comprehensive principles are simple only in comparison with the numerous particulars which they comprehend,—not in comparison with each fact taken singly. The learner should always be led to see and understand these general laws through the medium of such facts as illustrate them.

7. *The mind naturally proceeds to the unknown from the known.* It connects new facts or discoveries with those that have already become familiar, and these, in turn, become stepping-stones to a further advance. Approaching a subject for the first time, it instinctively seeks for some point of attack which is not entirely new. It rejoices to extend its advances along a well-known line of march, and to carry its explorations further than ever before, but it recoils from search with nothing to guide its investigations. It argues from analogy. It leaps by an easy inference from the seen to the unseen, from the present to the absent. Hence the connection of new facts with those already understood should be explained. Familiar truths should be

employed as a means of introducing new and analogous ones. Whatever is obscure can be elucidated only by means of what is already known. Every fact, clearly apprehended, gives the mind a certain impulse and power to grasp and assimilate cognate facts; and the more familiar one becomes with any department of study, the greater the relish he will have for additional information concerning it. The methods of original investigation and research adopted in the "seminaries," or clubs for voluntary work, connected with many of the German universities, afford an excellent illustration of this and the two preceding psychological principles. As far as possible let the work be done *con amore*. Encourage the student to seek information from various sources, and to form the habit of examining and searching for himself.

IV. 1. In the light of these psychological principles, and remembering that the mind is self-active, and must be developed by its spontaneous exertion and in accordance with its own nature, we proceed to consider the practical work of the educator. During its first five or six years the child has made acquisitions of knowledge of no insignificant amount. If his early surroundings have been favorable, he has mastered idioms and intricacies of a language abounding in difficulties; he has acquired a considerable vocabulary, learned the names and many of the characteristics of a vast number of familiar objects, and obtained facility in the use of his bodily powers and organs. How has he accomplished so much, and that, too, without painful effort and while his faculties were so feeble? Simply by following the promptings of nature. The restless activity, the fickleness, and the inquisitive instincts of the child have wrought to a grand result. Observant men and women have not failed to note this rapid progress, and have proposed various schemes for extending it into the later years of childhood and youth. Some have even endeavored to transform all the work of the child into play; others, as Pestalozzi and Froebel, have aimed, while teaching the great lessons of self-application, to adapt the work so happily to the age and taste of the learner that it should never become irksome. Pestalozzi believed that the successive steps in the attainment of knowledge could be made so easy that the child would take them without conscious effort. Froebel's "gifts" were constructed with this intention. Both were philanthropists, and their systems, which have often been misunderstood and perverted, were animated by the same spirit, — one of the greatest merits which the teacher can possess, — care for the child. Pestalozzi's motto was, "Love can always find means." To teachers he often said, "Go and learn of the mother." His invention, or, as

he called it, his discovery of object-teaching, was purely accidental, and a remarkable illustration of his disposition to make the best of the meager facilities at hand because of his love for the children.

The analogy of education to the gardener's art gave Froebel the name for his infant school. As the business of the gardener is to understand each plant and flower, to know how to bring it to the most perfect development, so the teacher is to watch and foster the growth of each budding faculty in the child. Not the least of the services rendered by Froebel to the cause of education was the introduction of this suggestive name. No teacher of little children can reflect upon the significance of *kindergarten* without becoming more thoughtful and appreciative. Skill in teaching consists less in imparting knowledge than in leading pupils to find out for themselves. Object-lessons are Nature's method of instruction, and furnish the best discipline for the mind of the child. Properly employed, they are admirably adapted to the wants of little children, but injudicious teachers often make them a means of loading the memory with burdensome lists of names and fanciful qualities and relations.

What the *kindergarten* is among German schools the *Salle d'Asyle* is among the French. Objects and pictures are substituted for books; the child is trained to observe the properties of familiar objects, and his imitative and constructive instincts are guided and developed in the production of articles of almost endless variety. Fortunately, these methods of instruction are not confined to any country, nor to the school-room. The little girl who is taught in the nursery or at the fireside the mysteries of paper dolls, birds, and houses, and the little boy who learns in the fields or woods to make a whistle, a jack-o'-lantern, or a trap, are being trained in the *kindergarten* method, and their pleasure and improvement bear constant witness to the excellence of the method. And, in this connection, note the necessity of toys to the child. How warped and one sided has been the manhood and womanhood developed by those people whose parents and teachers have overlooked or denied the importance of play and playthings for little children. In such persons the imagination lies almost dormant, and every event or experience is clothed in sombre hues. The art instinct is developed early in life, if at all. Those nations which have produced many celebrated artists have provided their children with an abundance of toys.

Our space will not permit us to enter upon other and attractive features of primary teaching. We note, by way of recapitulation, that the aim of the teacher should be to gain the confidence and affection of the children; to understand the peculiarities and require-

ments of each; to gratify their love of activity; to arouse and then satisfy their curiosity; to associate, in their minds, pleasure with instruction; to train them to observe closely; and to lay the foundation for future ambition and will-power by giving them as often as possible the pleasure of success.

As the child acquires the power of prolonged attention, the instruction may be made more systematic and thorough, but it should be given in the same spirit of love and with the same attractiveness as before.

2. The age of ten or twelve is, perhaps, the most favorable, during the whole life, for the education of the senses. The specific duty of training the eye, the ear, and the other organs to do their work easily and well has been somewhat overlooked. Each of these instruments of the mind is capable of great improvement, especially in childhood and youth; but, unfortunately, the evidence all goes to show that the sight, and even the other senses, are often impaired during the period of school-life. Our limits will not permit us to discuss this subject here; but if the sailor becomes able to see a ship at twice the distance at which the landsman can discern it, if the engraver and lace-maker learn to execute the most delicate work with the eye unaided, and if the other senses respond as admirably to the demand made upon them for more perfect work, surely the training of these physical organs should not be wholly neglected. What a pity that such a wonderful piece of mechanism as the eye or the hand should render us only one-half the service of which it is capable!

And closely connected with the perfection of the organs of sense is another particular in which great improvement is possible in most children. Perhaps there is no respect in which persons differ more than in their powers, or, at least, their habits of observation. Two men, for example, walk together in a park, or inspect the same piece of mechanism. One can give a clear and intelligible description of all that was to be seen; the other can recall nothing,—practically, has seen nothing. And yet, in grasp of thought, and in all that is usually called culture, the two men may be equal. Can any one doubt that he who is trained to habits of observation and quick perception has a great advantage? Manifestly, all children can be greatly benefited by such training as will improve their habits of observation. What is begun in the object-lessons of the primary school should be carried out and applied in the higher grades.

3. Before inquiring more particularly what sequence of studies will correspond with the growth of the mind, we must first dispose of a preliminary question. Is it possible to make school-work attractive

to the pupil? When the *kindergarten* methods and object-lessons are outgrown, must the pleasure and interest in school-work cease? Many claim that it must. Bain says, "There comes, then, the stern conclusion that the uninteresting must be faced at last. The age of drudgery must commence: every motive that can avert it is in the end exhausted. We begin the discipline of life by inuring the child, gradually, to uninviting, severe, and repugnant occupation."

Too often, alas! have teachers resigned themselves to the same conclusion. We protest against it. Such an admission robs both teacher and pupil of all enthusiasm and gladness in their work. In opposition to this depressing philosophy, we claim that the normal action of each faculty and power, whether of body or mind, was designed to be, and *is*, pleasurable. *Labor ipse voluptas* has been not less the experience than the motto of men of strong and well-rounded character. Properly regulated and directed, mental effort affords enjoyment. Absolute idleness is always irksome. Moreover, the love of knowledge, whether it be the curiosity of the child, or the irrepressible desire of the scientist to probe Nature's secrets, is an original and powerful principle, and may always be relied upon as a sure auxiliary of the teacher. No; the difficulty is not that pupils have no desire to learn, but that they are set to learn something which is not adapted to their range of thought. To this misfortune is often added the error of making school such a place of severity and unnatural restraint that the scholar has unpleasant associations with everything done there. But let school be made attractive; let it be pervaded by a spirit of cheerfulness; let the instruction and the requirements be properly adapted to the capacity of the pupils, and they will not deem the work "drudgery," nor the occupation "repugnant."

Having assured ourselves, then, that school-work need not be irksome and distasteful, we return to the question concerning the order of studies. Our answer, in general, is that those branches which call into exercise the reasoning powers or require abstract thought should be postponed as long as possible; or, if it is necessary that they be taken early in the course, that they should be so changed from abstract to concrete methods of treatment as to adapt them to the capacity of the child. Take, for example, English grammar. As formerly taught it was obscure, and, of course, distasteful to the child; but changed, as it has generally been, to "Language Lessons," it is brought within the reach of very young pupils. The testimony of teachers seems to be unanimous that the change has rendered the study much more interesting and profitable to the children. In most

public-school systems children are required to study arithmetic six or eight years. No one will claim that our pupils learn too much arithmetic; but why is it necessary to devote so much time to it? Simply because an effort is made to teach the child a study which he is not yet prepared to learn. Arithmetic calls into exercise a range of faculties which are not much developed in childhood. Between the ages of eight and fourteen the perceptive faculties, the memory, and the imagination act spontaneously and with remarkable vigor and certainty; the reasoning powers, on the other hand, act slowly and feebly, and only under an effort of the will which the child possesses little power to put forth. Many a bright boy or girl will read a story-book for three hours with ease and delight, to whom it is an utter impossibility to give fixed attention to the more intricate work of arithmetic for thirty minutes. Why should we insist upon trying to teach the pupil that which he is not qualified to learn? We may be assured that so long as we do we shall continue to find evidence of the inherent indolence and dullness of the pupils. President Porter says, "To anticipate the development of the reflective powers by forcing upon the intellect studies which imply and require these capacities, is to commit the double error of misusing the time which is especially appropriate for simple acquisition, and of forcing the intellect to efforts which are untimely and unnatural." To attempt to make up for the feebleness of the child's intellectual grasp by concentrating his thought and time upon a distasteful study, is unphilosophical and pernicious.

Probably the prominence which has usually been given to arithmetic and grammar, in the early years of school-life, has been largely due to their importance; but even the great practical value of these subjects is not a sufficient reason for requiring the child to grapple with them prematurely. On the other hand, it can easily be seen that various branches, not at present generally taught, might be profitably introduced into the lower and intermediate grades. Many subjects relating to elementary science and natural history can readily be so simplified as to be interesting and attractive as well as useful to the child. The same is true of history and the modern languages. A child of ten years can learn French or German with one-half the study that will be necessary ten years later in his life. Perhaps these languages cannot be taught in primary and grammar schools as now organized, but there is no difficulty in teaching the elements and practical applications of several of the sciences to classes of very young children. Instead, then, of sneering at children's text-books on familiar science, as is too often done, we ought to encourage the

production of such books, and endeavor to introduce them in the early years of the pupil's school-life. Nor should it be overlooked that the eager curiosity of the child, which will so greatly aid his teacher, is powerfully evoked by the elementary facts of natural science.

4. The importance of training the memory to do its work readily and accurately should not be overlooked. The reaction against "cramming" has created a tendency to undervalue this faculty. No power of the mind is more constantly in use, or has a more intimate connection with our happiness and welfare. No faculty will better repay cultivation. It served to raise Niebuhr and Macaulay and Prescott to the highest eminence, and in a less conspicuous but no less certain way has rendered multitudes of other men successful. Porter says, "The methods of education should be conducted with a distinct recognition of the wise management of nature in developing and maturing the memory. In the earlier periods of life it should be stimulated and enriched by appropriate studies. The child should learn stories, poems, facts, as freely as it can be made to respond to such tasks. Large accumulations of familiar knowledge may thus be made with the greatest ease."

In training the memory two objects should be kept in view: *first*, the ability to acquire rapidly. In the affairs of life it is often necessary that one should familiarize himself with a given subject on short notice. Thus an editor, a lawyer, or a man in business may be obliged to depend upon such study and investigation of a subject as can be accomplished in a very brief time. School-training ought to lay the foundation from which shall rise, in maturer years, the ability to obtain quickly a clear and complete knowledge of a subject. Hence scholars should be advised and required to study their lessons with the greatest possible concentration, and *thoroughly* master them in a short time.

A *second* object to be accomplished in the education of the memory is the accumulation of a large amount of knowledge. The changes which this faculty undergoes at different periods of life render such acquisitions easy. The child remembers each isolated object or event just as it comes to his notice. The man remembers principles and laws, and forgets disconnected details. During the early years the memory craves facts. So they be made inviting, the amount which it will devour is wonderful. By all means, then, feed it with its appropriate food. Let it acquire, as a permanent possession, the largest possible amount of *useful* knowledge.

5. Max Müller has shown, with great ability, the dependence of

clearness of thought upon clearness of expression. No one can proceed beyond the very alphabet of knowledge without the aid of language; and he who has not acquired clearness and facility in communicating his ideas has a perpetual impediment in his way. Thought takes form in language, and can only be clear and complete as it finds adequate and correct expression. It is not our purpose to enter upon any of the controverted points concerning the relative value of linguistic and scientific study, but simply to indicate the important psychological fact, that language is not only the vehicle of thought, but that it so reacts upon thought as to confuse and suppress ideas when adequate expression is not afforded to them. Hence the necessity of such drill and exercise and correction of errors in speech as will perfect this instrument of the mind, and render it serviceable in the highest degree.

6. In more advanced education the teacher should constantly aim to train the mind to habits of independent investigation and research. The amount of available information imparted in the school must necessarily be small in comparison with the requirements of every-day life. What men need is not so much knowledge as the habit of gaining knowledge; then, as occasion offers, the requisite information will be obtained. School-work should be so conducted as to necessitate research on the part of the scholar. He must learn to depend, not upon the text-book or his teacher, but upon books of reference and experiments and calculations of his own. To accomplish this, work should be assigned by topics, and scholars should be encouraged to gather information from every available source. Instead of answering questions, the teacher should tell where or how the answer may be found. Thus Faraday and Agassiz and Hopkins have instructed and invigorated their pupils by compelling them to instruct themselves.

Other points of interest and importance must be omitted from our discussion. We conclude with the following general observations:

1. The qualities of mind and character which are desired in the scholar must be in the teacher. "Men do not gather grapes of thorns, nor figs of thistles." If a teacher lacks integrity, refinement, earnestness, or courtesy, he cannot inspire his pupils with these virtues. An unconscious influence emanates from him which tends to fix the standards of excellence in their minds. Every teacher should distinctly understand that the prime condition of successfully inculcating any excellence, whether of morals or manners, of habits of thought or habits of speech, is to possess it himself, and uniformly practice it in his school. Especially contagious are such qualities as

cheerfulness, earnestness, and courtesy,—virtues of fundamental importance in themselves, as well as intimately related to intellectual growth.

2. In all grades of teaching distinct, and frequent alternations of subjects should be arranged. The mind requires for its best activity some variety of occupation. It relaxes its grasp if the tension is too long continued. Before the point of conscious fatigue is reached the form of exertion should be changed. Otherwise a feverish anxiety and restlessness will be induced, and the health will be endangered. Moreover, since the aim of the teacher is to produce a symmetrical development of all the faculties, such work should be provided as will call them successively into exercise.

3. Those men and women who have done most to make the name of teacher honorable, have reflected much upon the laws and conditions of mental growth. Whoever would attain the highest excellence in this profession must thoroughly understand the processes through which he would conduct his pupils. Here is an inexhaustible field of study. The teacher who gives little thought to it will find his work becoming superficial and mechanical. Probably to no man since the days of Socrates have these problems been more familiar than to Dr. Arnold. When asked why he continued to give so much thought to them, he replied, "Because I wish my pupils to drink from a running stream and not from a stagnant pool." If the teacher is to be a fountain of knowledge and power to his scholars, verily he must know their wants, collectively and individually. He will adapt his instruction to each; and that he may do this, he will observe closely their traits of character and habits of thought and expression, and will ponder upon the problems which they present. And, while he aims to enkindle in his pupils an enthusiasm for study as they look out upon the ocean of knowledge yet to be acquired, he will remember the motto of ex-President Woolsey, that "before knowledge we should place culture, and before culture we should place character."

RIGHTS OF CHILDREN.[1]

BY MISS EMMA C. BASCOM.

Children are the germ-life of the future. It is through our children that our most effective and permanent work must be accomplished for the continuous enlargement of the kingdom of knowledge and virtue in the world. It is, therefore, a matter of vital importance that the claims of children be well understood and fully met.

Children, in the first instance, have the sacred right to be well-born. We do not mean born into wealth or rank,—which is often to be ill-born,—but born of parents of good health, good habits, and just convictions; and so born into conditions favorable in some good degree to sound physical, mental, and moral development. Entailed evils, if overcome at all, are overcome with the utmost difficulty. The physical and moral deformities of vicious parentage sweep down the ages with ever-increasing power, filling our prisons, reform schools, and asylums, and corrupting the home, the church, and the State. Indeed, there would be no redemption for men under this law of increase were it not that families, nations, and races break down utterly under the entail of crime, and so fall off with the wreck of departing years. In view of the appalling vices entailed by bad parentage, and the tendency of these vices to perpetually renew and increase themselves, it is not too much to hope that the time may come when it will be considered the wisest policy for the interests of the state,—the most beneficent for the welfare of humanity, certainly,—to enforce sentiments, possibly to adopt measures, that will secure in some larger proportion this first and most fundamental claim of every child,—*good birth*. In our public schools one-half of the time now given to merely formal knowledge might, with great gain, be displaced by instruction concerning laws of heredity, and, later, by a faithful and impressive presentation of the responsibilities involved in parentage. When these things are more plainly and more generally understood, we may hope that the relations of marriage and parentage will be assumed more thoughtfully, and in more accordance with the laws of our highest being. Fathers will then less often blast the lives of their offspring by the entail of vicious habits and uncontrollable appetites. The time must surely come when deformed

[1] Paper read before the Woman's Congress.

and diseased children will no longer curse humanity, and when our advancement in the truly *fine art* of right living will be measured by the health and purity of our youth.

By these same laws of inheritance virtues are transmitted, which equally tend to increase and perpetuate themselves. Parents may endow their children with sound physical qualities and high spiritual tendencies. Such inheritance is the richest legacy a child can receive, and, for the lack of it, no future gifts or opportunities can at all atone. The well-born child may safely suffer many wrongs and privations; may, all unharmed, meet many temptations; while against coarse, low habits and degrading vices he is inwardly fortified. Such inheritance is largely independent of wealth and position, and is chiefly derived from character. The lives of parents while rearing their offspring tell with great power, but the habits, aims, and opportunities of their *whole* lives tell with immeasurably more power. These sacred laws of heredity furnish the highest incentives that could be given to human beings, to seek ever the largest, noblest, and purest life possible. By these laws virtues may be enlarged, vices may be eliminated, and righteousness made to prevail in our children and children's children. It is along these very lines of law that God visits either the vices or the virtues of parents on the third and fourth generations. Well are we taught by our Divine Master to make much of the children, for through them the kingdom of Heaven finds entrance.

The questions of the hour wait solution, and our great reforms move slowly on, because the good and wise endowed by noble ancestry are so few. No grander legacy can parents leave the State than well-born children; and in no more effective manner can they obey the injunction, "Prepare ye the way of the Lord." It was partly, at least in this spirit, that the Israelites attached such importance to children born and trained within their national and spiritual life.

Good birth makes good training comparatively easy. The first requisite in parents for good training is a knowledge of the general laws of physical health and of moral and mental growth. Ignorance here is the source of the yearly slaughter of many innocents, of much life long invalidism, and of much mental and moral weakness, for which no after-repentance of parents can make amends. Laws preside over all normal development, and these laws must be known and obeyed, or serious losses must follow.

For the same reason that the child, utterly unable to endow itself or defend itself against the faults of parents, is entitled to be well

born is it entitled to wise, physical training. Parents should know how to keep their children in health. When, through carelessness or negligence, illness has been induced, they should know how to restore health, without recourse to doctors or drugs, simply by giving the opportunity for the working of Nature's own curative forces. Plenty of sweet air and sunshine, simple food, and proper clothing are the chief needs of infancy. No ignorant nurses, no foolish fashions, no absurd customs, should be allowed any influence in the provision of these great essentials. Simplicity in every form should wait on childhood. The wisdom of the age demands especially that the clothing of girls should be suitable for out-door life, and that in its severe plainness it should suppress, so far as possible, that innate vanity which undue attention to dress in past generations has fostered in woman, always to her great detriment and often to her complete ruin.

Said the late wise and good Dr. Brown of Edinburgh, "Children should be always laughing or playing, or eating or sleeping." This is most true of the first four years, after which object-lessons, on the principles of the kindergarten, may be judiciously mingled with their play for the next three or four years.

All honor and gratitude are due Miss Elizabeth Peabody, Dr. W. T. Harris, and their fellow-laborers, for the grand work they have done for child culture. The interest they have awakened in this neglected department has led to the successful establishment of public kindergartens in many of our large cities, where to-day thousands of happy children, by their vigorous, physical life, their alert senses, and well-disciplined muscles, attest the fact that these schools are based on the right principles for the training of child-life; a training which aims to put the child in happy possession of his physical and mental powers in their conjoint action. We may well wish these public kindergartens to multiply till every child, whose home-nursery is not a kindergarten, shall be found in one of them.

The child who has received by birth and by personal care the primary conditions of physical well-being is farther entitled, according to the varying ability of the parents, to that discipline and instruction which are to unfold and enrich in due order his social and spiritual life. Little government is required during childhood where the example of the parents is correct, and the atmosphere of the home is one of love, patience, and self-denial. But if the prevailing spirit of the household is selfish and worldly, full of care and fretfulness, no amount of formal teaching and external discipline can avail against it. Impatience begets impatience; anger begets anger. The

faults and defects of children are usually either the reflection of those of their parents or a reaction against them. Often the surest and easiest way to correct children is for parents to correct themselves. The example of a true life is the most potent of all influences in molding the young.

Parents should cultivate the closest fellowship with their children by their ready sympathies and large participation in their joys and sorrows, in their games and tasks. The passing years will deepen this fellowship till authority gives way to counsel, and obedience is lost in reverent love.

Too much constraint and control are as hurtful as too little. Children need to be left much to their own resources. Experience is often their best teacher. What is learned by their own mental effort is best learned. Oftentimes the most salutary discipline is that which leaves them to suffer the natural consequences of their own conduct. Self-control and self-reliance should be prominent aims in discipline. The approbation or disapprobation of loving parents may be made most effective means of reward and punishment. Corporal punishment reflects discredit on the one who finds occasion to make use of it.

The training of the household should closely unite itself to that of the community. It is in passing to the larger range of life which society offers that the child encounters his first great dangers, and especially calls for the aid of parents. The public school is a peculiarly fit and helpful means at this point. By the support, supervision, and intelligent interest of worthy parents our public schools should be placed far beyond the competition of private schools in all appliances for physical, mental, and moral development. The larger and more promiscuous attendance give better conditions for self restraint and mutual forbearance; for sufficient but not over-much individual surveilance; for power of abstraction in the study-room, and for breadth of mental outlook in the recitation. The public school, by virtue of these larger interests and more varied circumstances, must ever be superior to the private school in its preparation for the work and duties of life.

High moral character is imperative in a teacher of youth, and all knowledge should be subordinate to it. Lofty ideals of manhood and womanhood, love of right, purity of habits, integrity and industry, these should be inspired and made impressive and attractive by the teacher's own life. The wise, conscientious teacher,—and there should be no other,—will carefully and widely discriminate between love of fun and noise, violation of petty rules and those moral

offences such as lying, cheating, idleness, and lack of honor, and will measure his reprobation accordingly.

The teacher must have a broad, mental outlook, and must keep abreast of the age in its advanced ideas, its advanced knowledge in physical science, in social science, and even in theology. No teacher is worthy his high calling who would be content to use the text-books of thirty years ago. Our youth should have the best thought of the hour; and, in their intellectual growth, should not be burdened, dwarfed, or hindered by useless details, obsolete facts, and exploded theories.

Children should be especially protected from undue excitement, from nervous fatigue and overwork. The utmost care is demanded to save them from the intensity and ferment of this age of feverish unrest and excessive mental activity. Our schools should be quiet retreats, affording the best conditions for the normal unfolding of the powers; where love of knowledge is awakened, high aims inspired, and sober purposes formed; and where temperance, forbearance, self-restraint, and industry are earnestly inculcated. If we would have our children grow up into great thinkers and strong workers, it is of preëminent importance that we secure for them regular, healthy, and proportionate discipline. It is for this reason we look upon external stimulus as hurtful, and would suppress, rather than stimulate, any rivalry or emulation that did not arise from the incentives of the mind itself; and would, therefore, banish prizes from every school and college in the land. We fail to understand why many of our higher seats of learning foster this pernicious emulation, this love of notoriety, by material prizes bestowed in public. Much less do we understand why they look with favor on those physical contests whose very nature is excess, and which so readily lead to farther excess that "out of training" is coming to signify a free indulgence in animal appetites. It is this very supremacy of the lower appetites that is fast making shipwreck of all integrity and purity in political life. Truly, we need to go back to the Delphic oracle, "Nothing in excess."

There is also, we feel, too much cramming of rules and abstract definitions in our public schools, and too little teaching of broad and suggestive principles; too much grammar and arithmetic, and too little training of the faculties on the world about them; too much mental pressure, and too little physical culture and happy out-door life. While young boys still hang around street-corners, lounge in saloons, and smoke everywhere, we fear that our public schools have not yet either the attractions or the energy of restraint that belong to them.

If the public schools are to do for the Nation their truly great work, we must devote to them our best thought and sustain them with an unwavering hand. Just here we would call upon all good citizens to denounce, by word and deed, that ruinous public economy that begins its retrenchments by reducing the low wages of teachers, while the public treasury still pays the most exorbitant bills of our legislators for gluttony and drunkenness.

The last thing we have occasion to mention as belonging to the rights of the child is moral and religious training. This is not so much something beyond the things already noticed, and so different from them, as it is their true spirit and form. The household is the first field of the moral law. Here the child encounters it, and here he must learn both to obey it and rejoice in it. The highest inspiration of the home, as it is the highest inspiration of life, is the sense of the divine presence and love. We shall never bring our own thoughts nor the thoughts of our children to their true elevation, except as we abide in this presence and lead them to it.

Parents and children enter together into the labors, the sufferings, the enjoyments, and the hopes of life. Life has for them one law and one solution, and this law is the moral law, and this solution religion. The best powers, the highest wisdom, the profoundest faith of parents will be called into requisition. Their own education must needs advance while fulfilling their responsibilities to their children, guiding them into beneficent purposes and labors for the world. Time, thought, sympathy, and companionship must father and mother give to their offspring, or suffer irreparable loss, both for them and for themselves. No duties will bring richer reward. Wisdom and patience are as potent certainly in the rearing of children as in the rearing of domestic animals; and "of how much more value is a man than a sheep!"

It is in part because of this strict community of spiritual life in the household, its reciprocal ministrations and collective strength, that we would insist so firmly on the true position of the wife and mother. She must claim it for the sake of her children as well as for her own sake. The ideal mother can be no mere household drudge, ministering to the physical wants only of her family, and sacrificing herself on the altar of wifehood and motherhood, to be weaker and less regarded for this very self-abnegation. As the father cannot wisely devote his *entire* time and energies to his business or profession, but needs the companionship and duties of the home to sweeten and make symmetrical his character, so the mother requires outside interests and activities to broaden her knowledge, deepen her sym-

pathies, and enlarge her mental vision. Not otherwise can she fully meet the demands of the ideal home with its claims on all spiritual wealth. She must seek and obtain influence and authority in school, church and state, that her counsel may command the respect of her children, and her love win their love. The richest ministrations of affection need the support of intelligence for their full influence. Affection may aid, but it cannot displace, the word of wisdom. The welfare of the home, and her own individual growth, alike call for this enlarged social and political power for the mother, or her weakness will in some direction betray the interests committed to her. If it be thought that herein we are laying new burdens on physical powers already too weak for those which are being borne, we answer that the many trivial, health-destroying things, the useless, wearisome tasks, which fashion and society now assign to unoccupied powers, are to be escaped; and that the strength for full and varied service will spring up with the service itself. As in the history of the world women have not shown themselves unable to bear even the most degrading, unrequiting, and irksome toil, so certainly they will not fail of the power required for noble labor.

While the law of the household is constant concession; while the special rights of adult sons and daughters may, for the time being, be lost sight of in the common work, it is none the less true that the concession is made for the sake of each one who is partaker in it. The greatest good of all is reached by mutual help, mutual sympathy, and mutual sacrifices, and yet with the full freedom of each and opportunity for each. Together, parents and children build up the ideal home, full of love and kindness, full of wisdom and discipline, the center of all divine beneficence, the perpetual revelation of divine love. This common integrity is conditioned on the fullness of each life within itself, on the fairness with which it unfolds toward every other life, and on the scope, largeness, and community of sentiment that call it out. The law of the household must be a perfect moral law, and its inspiration a divine inspiration.

When manly purity and womanly strength thus pervade the home, not only collectively but individually as well, in all the varied combination of symmetrical character, it becomes the porch of *that* temple, the primordial institution of *that* kingdom, which are built of God and unto God in the world.

INDUSTRIAL EDUCATION, AND INDUSTRIAL DRAWING AS ONE OF ITS ELEMENTS.

BY S. EDWARD WARREN, C. E.

As the term Industrial Education has been criticised, we will begin by saying, to avoid misunderstanding, that by this term we mean just such preparation *for* industrial pursuits as schools usually give for "business or college," and not an actual teaching of trades.

There is experience to show that the introduction of a new subject of study, and still more the creation of a new department of education, is a difficult task. It is not unnatural that it should be so. Thousands and tens of thousands of teachers have learned a certain group or line of subjects. Though it would be most unjust to imply that they do not continue to learn in after-life, yet it may generally be true that their additional mental growth and acquisitions are mostly, if not wholly, in the line of their previous studies in the years of their own school-life. So far as this is untrue, it is so in the case of those who are correctly described as marked by versatility of character and talents; that is, by the disposition and the ability to turn their hand to anything, or at least to more than one thing. These versatile people are the hope of the world, so far as new things of any kind are to be brought into use through the agency of the generation which for the time has possession of the stage. Beyond them this hope is in the generations following. We say generations, for if there were none having the versatility just mentioned, any existing order of things would be almost indefinitely perpetuated. But the few now on the stage who take kindly to new ideas, studies, and enterprises, in the world of learning, can and will train up a certain number of pupils in their new-found paths. These, in turn, will train others in the second generation; and so the new subjects or methods will finally be made as early and generally accessible as any others ever were, and will be brought within easy reach of all who want them. This natural process of dissemination is like the expanding circles formed by throwing a stone into a pond; or, more exactly, like eome of those rapid multiplications in the lower members of the animal creation in which one becomes the center of a circle of successors, each one of which detaches himself after a while from its parent, and in turn becomes a new center in a like manner.

The only alternative to this seems to be to create what we will venture to call a conservative furore; the conservatism acting as a great storage reservoir of experience and reflection to prevent the strong current of popular thought from swelling into a damaging torrent, — literally, to prevent the furore from degenerating into a "craze." But we prefer to this the natural method of expansion already mentioned, and suggested by the operations alluded to in the kingdom of nature.

Absence of versatility, and consequent liability to make and follow ruts,—though no one knows, until he rouses himself by a vigorous effort, how much of very useful versatility he possesses, — is not, however, the only hindrance to the clearing, breaking up, and cultivation of new and hitherto neglected, though fertile, educational fields. There is probably something of the craft-jealousy which made Demetrius and his crowd cry out for the space of two hours, "Great is Diana of the Ephesians"; the hidden stimulus to their "too thin" because too vociferous devotion, being the unwelcome suspicion that "our craft is in danger." In former times of benumbing ignorance, when multitudes could not see beyond the passing day, and had not the power to reflect, any improvement was superstitiously dreaded as sure to bring ruin in its train. But experience has taught us that every improvement is a new ally to the existing forces of good, and that it makes the demand which it is to supply. It does this, moreover, not by robbing other supplies of the demands which they exist to meet, but by appealing to a new constituency hitherto unsupplied. The most extensive possible American production of tea, raisins, and silk would not diminish, but increase, the cultivation of wheat and corn. So a large increase of industrial education of all grades would, in all human probability, never dislodge any living teachers of language, literature, history, and philosophy, nor diminish the future demand for them; but rather would increase it in a certain way, since all these subjects should be included in a certain degree and manner in all education whatsoever.

The Mississippi River is necessarily different, below its junction with the Missouri, from what it was above, by reason of the character of the latter, without laborious and anxious efforts by man to create such a difference by transporting and dumping quantities of the Missouri's banks into the Mississippi. So the current of life, since the existence of Greece and Rome, has inevitably been varied by new constituents, not before possessed, yet without anxious labor by man to make it so. Classical learning will always have its natural and willing devotees, through whom it will surely and sufficiently perpetuate

itself. But surely it is most needlessly and abjectly uncomplimentary to any other age or nation to say that it is constitutionally incapable of a total life, body of thought, and language as a vehicle of thought, *equivalent* to those of Greece and Rome, though not identical with them; and that no finished thinking can be done, or even the capacity for such thinking be acquired, otherwise than through familiarity with Greek and Latin forms of speech.

This much may be enough, by way of amplification of the major premise, that the introduction of a comparatively new and unfamiliar branch or department into courses of study, of whatever grade, is a difficult task. Industrial education, in all its elements and grades, whether as to its principles or practice, is such a comparatively new and unfamiliar branch. Therefore its introduction into courses of study is, etc. So says logic in minor premise and conclusion, and we answer, Good for logic, so far as it goes. But life is more than logic, as much more as a warm and vigorous living body is more than its dried and wired skeleton hung in a closet. Hence, as living beings, we wish to know something of what industrial education is, in its roots and branches, ideas and manipulations, scope and use. We shall thus be better able to judge of its worthiness of admission among the subjects of study which are to be generally or widely pursued. A favorable judgment on this question will then act as a stimulus to overcome the difficulties in the way of such admission.

But there is a preliminary question as to time; for, if no time can be found for a new department of work, it is no matter either what it is, or how good it is. First in order, then, is the question, How is time to be found for industrial education, especially in view of the frequent complaints about the over-crowding of school-courses with too much work, and the confusing of them with too many studies? For, if time cannot be found, and advantageously found, it would, as just said, be useless to dwell on the beauties or utilities of the subject as an admirable mental discipline in neatness, order, and precision, in thinking in *things* as others think in *words;* and so in inventive combination. Now, first, in general, and for the larger future, any observer of life must have noticed the tendency of fashions in everything to move in cycles, and so to return, after awhile, to some former customs. Thus we have had Grecian domestic architecture marked by two-story hollow columns of inch-board, as the far-off Yankee successors of the snowy marble solids of the Parthenon. Then we had equally frivolous gothic. Better was the Italian, with its broad openings and flat, overhanging roofs. Then followed the roomy French roof; and just now the "Queen Anne" style is

generally popular. But at some time there will be a revived and modified Grecian, or Gothic, or some other former style. So, again, in education, where forty-two weeks study and August commencements were once the rule, thirty-six weeks study (in an extreme case only thirty-four) and June commencements are now usual. Also the "three R's" that once formed, with something of geography, the staple of common education, are now reinforced or smothered, as we happen to feel about it, by all the 'ologies,—backed, perhaps, by all the 'isms.

We are of those who believe that in both of these particulars,—as well as in the far more important one of the education of the moral nature, under a higher sanction than that of expediency, or merely shifting human custom and opinion, — there will some day be a reaction. We believe it will be found that regular and moderate work, nearly or quite the year round, with daily hours, weekly days, and numerous other short intervals for rest, will be found more beneficial to mind and body than long stretches of uninterrupted activity, aggravated by occasional spurts, alternating with wastefully long periods of entire inanition. The sudden rise and rapid increase, both in number and variety of "summer schools,"—even including one in *Hebrew*, — is already a strong testimony to the natural thirst of healthy minds for a continuous combination of labor, recreation, and rest. By this plan much time could be gained.

With respect to the other point, the multiplication of studies, we think it will be one day realized that, as Hugh Miller and other equally celebrated and successful self-instructors have said, reading is the pass-key to all other knowledge; is in very deed a putting into the hands of the earnest and reasonably capable seeker the key to the door of every treasure-chamber of the vast temple of knowledge. We believe, therefore, that the time will come when schools will be graded far more largely according to subjects, and classed far more largely according to the chosen pursuits of the pupils, than according to the non-essential matter of the age of the pupil; and that far fewer subjects will be taught in any one grade or class of schools than are so taught at present. We believe that there will come to be a foundation grade of schools, in which no more than reading, writing, spelling, and arithmetic will be taught to all comers, regardless of age; and so that by more or less variation of rooms, of hours, and of books, persons of any age, whom misfortune has left uneducated in books, can come and receive the *kind* of instruction they need, in the *way* they need, without exposure to the mortification of being put on the same level with little children, in books, discipline,

and methods; and we believe that in such schools, histories, biographies, and travels will be the reading-books for the grown-up pupils, with maps and globes, and occasional oral lessons, by which to learn geography and grammar incidentally through the reading-lessons. Such schools would, except as replenished by ignorant immigrants, soon cause illiteracy to become as nearly extinct as in Norway and Sweden, where, according to various authorities, it is nearly unknown. One states that, in round numbers, 975,000 out of 1,000,000 children of school age were under compulsory instruction.

With the entire Nation thus initiated in learning, and adult illiteracy practically extinct, subsequent schools would well be classed according to the six generally recognized grand divisions of human activity,—agriculture, commerce, and manufactures, or the *industrial* or material group; and literature, science, and art, or the scholarly or intellectual group. The existing state of things indicates a struggle to realize this classification by providing public or private special schools to supplement the deficiencies of the general school system. Thus we have agricultural colleges, commercial colleges, schools of industrial drawing and design, and evening schools suited to business or to artisan life; also, we have colleges of music,—sometimes, also, including the elements of a general education.

A powerful impulse toward a fuller realization would come from a broadening of our ideas of language and of a school. It will have to be recognized that man can think in things as well as in words, and that some can think better in things than in words. It will be more generally seen that a complete Bessemer steel establishment, a modern steam printing-press, or steamship, are as truly intellectual compositions, written with fire and hammer in words of brass and iron, as the Iliad, or Scott's novels are compositions written with ink in words of letters; that there are diversities of gifts, but that all have not the same gifts; and finally, that the substantial equality of the gifts, in many cases, is shown by the equal impossibility of either of two possessors of different gifts doing what the other can do. Watt could no more be Milton than Milton could be Watt, and neither of them could be Washington any more than Washington could be either of them.

It will also have to be recognized that any place in which mind and hand are called into joint activity, under competent guidance, in learning what to do and how to do it, is truly and properly a school, and that if to the *what* and the *how* a knowledge of the *why* is added, it is truly a school for the mind. Thus the farm, supplemented by a good agricultural newspaper, agricultural books, and an active farmers'

club or lyceum, for the intellectual part of the business, is the original, natural, and most real school for the farmer,—enough to make him successful in his calling, proud of it as essential to the existence of all others whatever, and joyful in it as the healthiest for body, mind, and manly character. Similar remarks, to a greater or less extent, may be made of the ship, as the school for the sailor; the store, as the school for the merchant; and the work shop, as the school for the artisan. Looking on all these as the true counterparts for the parties concerned,—of the laboratory for the chemist, the observatory for the astronomer, the studio for the artist, and the dissecting-room for the physician,—and as truly and really schools, and scouting the senseless, indeed the "dude," notion that the respectability of an occupation depends on the style of dress and state of the hands which it permits or requires when on duty in it,—as if character were put on and off with the garments,—false notions of the relative honorableness of different pursuits will give place to sensible ones. Then it will no longer be felt that, to make any calling honorable, it must necessarily be backed by an institutional or book school. Why, for example, is it in any respect better to learn how to drive a nail or saw a board in a school-building than in a carpenter's shop, the same man being the teacher in both cases? And the like may be asked of the demands of any practical calling.

When such rational ideas as we believe these to be come to prevail, then the idea of half-time schools will follow. All the varied haunts of industry will be seen to be only so many laboratories or practice schools, supplementary to the book or institutional schools. The reaction of each upon the other would be most admirable. In the laboratory, as we call the shop, farm, or store, the pupil would find out what it was that he most needed to learn, and at the school, or at the public library,—especially if one or more consulting educators could always be found there,—could learn it; while in the school, experience would show how to adapt the instruction to the wants of the pupil, and would increase his intelligent interest in his practical work.

Lest the views now given should seem visionary, it may be added that they have long been realized in several important features in foreign experience. In showing this to be true, we shall not go over the most familiar ground of French, German, Austrian, and other statistics of elementary and higher industrial and technical education in the great European nations,—for which see the reports of the United States Commissioner of Education, or other authorities,—but we shall introduce some recent ones from the smaller, poorer, colder,

and less familiar far northern countries, Norway and Sweden. These statistics are especially interesting as being, not unnaturally, a probable surprise to most inquirers. All over Sweden, the most prominent building in most of the towns and villages, even in the far north, is the school-house, which is sometimes really elegant, and is generally provided with a gymnasium, providing for physical culture, and a library, which provides for the voluntary element in education,—in other words, for a measure of self-education. Teachers are honored, not only on abstract grounds as belonging to a noble profession, but on the more practical one of being themselves highly educated; they being generally university graduates, except in the most rural districts, where the movable ("ambulatory") schools are conducted by intelligent farmers. This honor is also manifested socially, and by pensions after thirty years of service. The course of study in the common or "people's" schools is wisely flexible, the school-boards having discretion to extend it, according to the wants of different communities, so as to include natural science, drawing, and surveying for the boys, needle-work for the girls, and horticulture and gardening in the farming regions. Here is just that equitable recognition of all callings which, as we have urged above, should prevail everywhere. It should do so as a check to an inordinate and unhealthy stampede to the city, and to its over-crowded pursuits, and in order that a much-to-be-desired enthusiasm and ambition for agriculture and the useful arts might be developed.

Besides the universal and reasonably varied people's schools, there are in Sweden fourteen people's high schools, suitably distributed among a population of about four and a half millions (equivalent, therefore, to one hundred and seventy such for the United States) for the instruction of young working-men and women beyond the school-age, in general knowledge and in practical science suited to their daily industries. There are also ten schools for such children of the industrial classes as show special desire and aptitude for more knowledge than the general common schools afford. Further, there are many public and private professional and trade schools, twenty-seven agricultural schools, and two agricultural colleges. In the former, the trade schools, various trades are taught; in some there is a course of three years of mingled study and practice, of which the Worcester (Mass.) Free Institute of Industrial Science may be taken as an American example. At Bergen, in Norway, is a free industrial school of over five hundred girls, from seven to sixteen years of age, in which all manner of sewing and knitting work is taught, combined with the elements of useful knowledge. In Stockholm is a free in-

dustrial school of over twenty-five hundred pupils of both sexes, and where there is instruction in a large number of useful studies and practical pursuits. The course in the agricultural schools lasts two years. Some of them include dairy schools for women, where they spend a year in learning everything about butter and cheese making. Over all, as respects industrial education,—there being, besides, three universities for which preparation is made, as here, in public or private high schools,—are two polytechnic institutes, both now *more than seventy years old*, and two private mining schools. The two former contain over four hundred students.[1]

If, now, the stereotyped phrase in school-advertisements, "preparation for business or college,"—and which applies equally to public and private schools,—expresses the one-sidedness of American education; and if this phrase, needs to be supplemented by the words for agriculture, the arts, and scientific schools, there must be some underlying natural fact to justify the charge of one-sidedness, and the demand for the supplementary addition, which is called for here, and was long ago put in operation elsewhere, as just shown. We believe that there is such a fact, and that it may be expressed as a fruitful principle by saying again that some men think in *words*, and some men think in *things*. Webster, in his noble Bunker Hill Monument oration, was a splendid example of a man thinking in *words*, and also of the fact that a toilsome New Hampshire farm-life was no necessary hindrance to his being such. Ericsson, planning the Monitor, turning off sheets of elegant drawings (the written language of mechanical composition), is a corresponding example of brilliant thinking in *things*. Probably there are few who do not know of some among their acquaintance who may have been more or less conspicuous failures in school or college, and who, nevertheless, have shown large capacities for practical affairs, agricultural, commercial, or mechanical,—managing, it may be, extensive works for a long time and with high success. This being so, natural justice and equity toward minds of equal capacity, but widely different constitution, demands that each should have the kind of education on which alone it is possible for it to thrive.

But how shall this equality be brought about? In either of two ways, either of which will secure a cardinal point on which all freemen are sensitive, that of all being served alike. First, taking the ground that letters are the foundation of all thought-life, and figures and forms of all practical life, popular education, for all who do not

[1] See the *Land of the Midnight Sun;* Du Chaillu; ii., 378, etc. Also, Report of Mass. Board of Education, 1881–1; p. 163, etc.

choose to pay for more, may end with language, arithmetic, and geometry. Real life, in all its departments, will then be the universal school, in some one department of which every one will find himself. He will then gain whatever further education he wants, whether general or special, from libraries, general or class periodicals, masters in whatever business he is in, or associations of persons in the same pursuits. This is essentially the method by which, in former days, every great pastor's study, every great physician's, or lawyer's, or architect's, or engineer's office, or artist's studio, was a school for candidates for these callings: just as the shop, the ship, or the farm was the mechanic's, the sailor's, or the farmer's school. Whatever else may be said of this plan, this is doubtless true of it, that it favored that precious thing, individuality, and did not tend to make all education the work of an educational mill, turning out men as much alike as two yards of white cotton from the same piece.

The other method is to teach the elementary principles and operations of all pursuits, intellectual, commercial, mechanical, and agricultural, in the appropriate schools, suited to the wants of local communities. So long as the popular feeling, whether vague or intelligent, is that it is a privilege, a dignity, and an advantage to go to school, and the more so the longer the attendance and the higher the school, so long popular respect for different pursuits will be very apt to be measured by the comparative amounts of school-preparation which they respectively receive. If, then, the result is to be reached exceedingly important to a republic, of holding in equal respect all occupations which imply equal intelligence, and are equally promotive of public and private prosperity and virtue, one of two things must be done. If institutional or book schools, alone, are to be regarded with honor as really deserving the name of schools, then all pursuits must, in some way, be represented in schools,—that is, must find something in the lessons and the teaching which is directly adapted to their wants as preparatory to them. Otherwise, the idea and definition of school must be broadened, as already indicated, until the places in which all the various industries are learned by experience are regarded as just so many industrial schools, radiating from the elementary school of letters, figures, and forms, which gives only what all need, and all need alike.

We insist again on forms, since it greatly needs to be everywhere realized that *geometry* is the foundation of all *mechanical* pursuits, as truly as *arithmetic* is of *business* pursuits; and hence that,—as has not yet been the case,—it should everywhere be begun as early, and in as elementary a manner, as arithmetic is.

When a whole nation,—nay, the whole world,—is resolved to make an experiment, as of industrial training in institutional schools, it would probably be useless to do more than is here done,—viz., to point out such principles as might guide the experiment, and such alternative as may be resorted to, should the results of the experiment be disappointing.

We, therefore, here leave the general subject of industrial education to consider for a little while industrial drawing as one of its principal elements, it being auxiliary to so many and important different pursuits.

What, then, is industrial drawing? Its name is its almost complete definition, or, at least, carries its definition in it. It is all such drawing as directly helps on all those useful industries which deal in a definite way with *forms*. Industrial drawing has, therefore, no direct relation to crop or stock raising, and would afford no obvious assistance in plowing, planting, or reaping. Yet, if the farmer were to plan and help to build some of his farm-buildings and furniture, or invent or improve farm-tools and machinery, industrial drawing would be useful to him and his boys. So, also, it would be to his wife and daughters in their efforts to make original and natural decorations to the otherwise bare surfaces of their rooms and furniture. If industrial drawing, thus generally defined, is of easily possible use to the agricultural section of the population, to whom at first thought it might seem to be useless, it may readily be granted that it will be more or less extensively useful to most others. [We here purposely employ the word "section" instead of *class*, since the latter word has become so far infected with the repulsive spirit of caste, in being made to express false ideas of rank, that to many it may be offensive.]

But what, a little more particularly, is industrial drawing? As implied in the reference to the farmer and his boys, and to his wife and daughters, its total scope divides itself naturally into two main divisions; viz., *mechanical* industrial drawing, and *ornamental* or decorative industrial drawing. Strongly pronounced examples of the distinction between these divisions may be found in the drawings of the frame of a building, or of the plain masonry of a system of waterworks or fortifications, or of a plain working-machine, and the drawings of a proposed piece of wood-carving, or a carpet or lace pattern.

With reference to the method of execution, mechanical drawing, as its name implies, is executed by means of certain exact operations with mathematical drawing instruments, and hence is very properly termed instrumental drawing. Indeed, the term mechanical drawing is itself ambiguous, since it may refer to the mechanical *means* by

which the drawings are made, or to the mechanical *objects* which it aims to represent. Again, as the principles and methods of instrumental or mechanical drawing rest on a foundation of geometry, it is sometimes and very properly called geometrical drawing. Decorative or ornamental industrial drawing is executed wholly or mainly by the unassisted eye and hand, and from this point of view is often called free-hand drawing.

Industrial free-hand drawing is to be distinguished from purely artistic free-hand drawing, in that in everything to which it is applied the idea of practical utility enters as essential and primary, while that of beauty is subordinate. Thus the primary use of a gold goblet, however richly jeweled, or elaborately fashioned and decorated, is to drink out of; the primary use of a bedstead, though ten feet square, made of all precious woods, richly carved, satin dressed and velvet-canopied, too, is simply to rest or sleep on; and the primary use of a chair is to sit upon, however costly and elegant it may be. Purely artistic drawing, on the contrary, is intended only to afford pleasure by gratifying the sense of beauty.

Once more, as to grade: instruction in industrial draw ingmay conveniently be divided into elementary and higher,—the former suited to secondary education, or that of preparatory schools, and to the usual pursuits of those whose education does not extend beyond that grade; and the latter suited to professional schools, and to special class-schools for skilled workmen.

Mechanical industrial drawing has for its object such exact representation on paper of the intended form and construction of any proposed structure of definitely prescribed form and dimensions, that the object can be constructed from the drawing as a guide, though nothing like it was ever before seen. This kind of drawing is of immediate, obvious, and great utility to all whose daily business it is to give definitely prescribed form to any of the three great materials which enter into exact construction; viz., wood, metal, and stone. Of this drawing alone we shall further speak, leaving to others, who are more familiar with it, the equally important division of decorative industrial drawing, otherwise called ornamental design.

We will next proceed, therefore, to explain the composition of an efficient course of mechanical drawing. First, there comes into operation that familiar principle of imperceptible shading off from one division of things to another, which, for example, makes it so difficult to determine whether sponges and other very low forms of life are animal or vegetable. Thus the mechanical draftsman must not be dependent on the penman or designer for the lettering and

border of his drawing. Or, in making a tour of observation, he must not be unable to make rapid sketches, either in plan and elevation, or pictorially, on which to record such principal measures as he would wish to note. Also, in making fine drawings, as of small toothed wheels, it is very desirable to be able to bisect or trisect a small distance by the eye, since that would be a quicker and more convenient method than by a scale and dividers. And yet, again, if an unconscious jogging of dividers or a ruler should slightly alter a distance or the truth of an intended right angle, it would be very desirable that the eye should be able to detect the error. For these and other reasons there should always be attached to a proper system of mechanical industrial drawing *a body of specially related exercises in the free-hand drawing* of regular forms, angles, directions, spacings, lettering, etc.

Again: mechanical drawing is two fold in its subject-matter,—embracing, first, geometrical principles and their application to practice; and, second, a practical knowledge of drawing instruments and materials and their use. In a word, the subject has an intellectual side and a manual side; and, in order that one who knows how to make a drawing, so far as to know where and how to locate all its points and lines, should not spoil it in execution, he should first become practically acquainted with the materials used for the purpose. On the common-sense principle of "one thing at a time," *a separate body of exercises in drafting manipulations* should precede those of complete practice. Experience abundantly shows that it is very easy, at the stage of study to which such exercises belong, to avoid any appearance of aimlessness in them, and to make them highly interesting in themselves, while they evidently facilitate aad improve subsequent higher exercises. This is done partly by putting them in an attractive form, uniform and convenient for preservation, as in plates about eight by twelve inches in size, or smaller, to save loss of time and labor through spoiled work. Also, elementary use of the mathematical instruments may be agreeably combined with the necessary pen and brush operations. Thus, in learning to spread an even pale tint of india-ink or color, it may well be squares, triangles, polygons, circles, rings, etc., that are tinted, instead of indefinite patches of paper. Then, after facility has been acquired in the more elementary exercises, there is a very agreeable body of practical exercises involving but two dimensions, as geometrical tile pavements, doors, windows, or brick-work, which conveniently and appropriately comes in along with a selection of the most generally useful geometrical problems to give body and character to the series of lessons, and to

make them both attractive and highly useful in their effect on subsequent higher work.

After the two preliminary sections just noticed, there properly comes the essential substance, the soul, if one may say so, of mechanical drawing; viz., a knowledge of projections. Representations of actual or proposed solid bodies on flat paper are made in two entirely different ways, for two equally unlike purposes. They may be represented in their *apparent* proportions, or as they do or will appear when seen from a given standpoint; or they may be represented in their *real* proportions, or as they really are, excepting, of course, their actual size. Being drawn to scale, however, they do show all parts in the same proportion, and hence, knowing the scale, the actual size can readily be ascertained. The former representations are *perspectives*, and are made for *pictorial effect*. The latter are *projections*, and, in their practical applications, are what are known as working-drawings, or those by which, ships, engines, buildings, bridges, machines, tools, furniture, mechanical inventions, and, in short, every kind of architectural, mechanical, and engineering construction, appliance, or device, are represented as they are, or are to be, and from which they can be constructed, as intended by the designer or inventor. Every one, therefore, of the hundreds of thousands of persons who are engaged in the designing or making of any of these many things, in all their variety, has a direct and immediate interest in possessing a practical knowledge of mechanical drawing; while to all that large portion of the general public which at any time is employing persons engaged in these industries, some knowledge of this subject would in many ways be a great convenience. What was doing or to be done would be more clearly realized, and misunderstandings, disappointments, and contentions would be avoided.

The higher principles and practice of mechanical drawing belong to the higher technical schools, which are generally well appreciated, and where the subject in its higher relations is known to be increasingly well cared for under the name of descriptive geometry and its applications, the latter sometimes collectively known as stereotomy. The great popular movement now going on, — though yet in its infancy,—in behalf of industrial education, more immediately concerns secondary education, or that given in academies, high schools, and special manual-training schools. Our remarks are, therefore, mainly devoted to that grade of mechanical drawing which, as an essential element in a general elementary industrial education, belongs with its allied subjects in the elementary schools.

By analyzing geometrically any number of architectural, mechan-

ical, and engineering structures, we shall find that, with comparatively few exceptions, their component forms reduce to the five which are characteristic of elementary geometry. These are the prism, pyramid, cylinder, cone, and sphere. Thus a brick is a prism, and most masonry is prismatic or pyramidal. An immense number of the separate parts of machines are cylindrical or conical Many of them are spherical, and so are domes, while the sloping roofs of round towers are conical. The most numerous and important exceptions just alluded to are the screw forms, found in machinery screws, circular stairs, and screw propellers,—the annular or ring forms having a circular cross section, as in a ring of lead pipe, and bell forms.

All this being so, systematic progress from the foundation would naturally begin with making the learner thoroughly familiar with the plans, elevations, and sections of all positions of these five elementary solids which enter so largely into the composition of all material structures of a geometrical character. But these bodies are often found in combination, as when a pyramidal portion of roof, as of a tower, rises out of a cylindrical one (as a French roof), or when a cylindrical pipe has cylindrical or conical branches, or a cylindrical (arched) gallery opens into a dome (sphere). We see, therefore, that besides the representation of the separate solids, there is frequent occasion to find the lines in which they join, cut, or intersect each other, when combined in various ways. *How* to do it, it is the object of easily accessible works to tell. Our present object is only to call general attention to the fact that it needs to be done; that many have occasion to know how to do it, and chiefly that they should be able to do it by some more rational, direct, purpose-like, and less wasteful way than the "cut and try" method. But to reach this result there must be thorough and systematic teaching, not covering a wide range of forms or geometrical principles, yet thorough in principles and practice as far as it goes, and embracing all the usual forms.

From this foundation of elementary mechanical drawing the learner can proceed to work of a more practical character, in the drawing to scale of carpentry, masonry, and machinery details and simple structures. In immediate connection with this stage of his work the easy special forms of detail drawing, called isometrical drawing and oblique projection, may be soon acquired. These are especially suited to the representation of all manner of small square-cornered work, like boxes, framing-joints, etc.

If there be an exception, in which the initial drill in the projection of the simple geometrical solids might be omitted, it would be in the

case of skilled mechanical artisans. Their superior familiarity with the objects which they are constantly handling, and looking at in every possible way, might make it practicable for them to at once attack the problem of drawing those objects, and to refer to the equivalent elementary solids only as emergencies might arise, or to make some principle of general application clearer. But for all those who are not yet artisans, but intend to be, it would seem to be the best, if not the only proper place to begin, as suggested, at the natural beginning, the projection of the elementary solids, singly and in various combinations.

The difference between the two cases just described indicates the utility of special evening or shop schools for artisans, in other subjects as well as in the one under consideration. Their age, previous experience, and consequent mental characteristics and resulting wants, are all quite different from those of ordinary school-pupils, and hence call for a different kind of teaching. It is, therefore, a work of wise benevolence for employers, or others, to establish or favor such schools.

At this point we may suggest some reasons why industrial drawing, of one kind or the other, may generally well be the first subject of industrial education to be introduced in experimenting on the whole subject. First, it requires less change in buildings or class organization. All the instruments and materials required by it can be used in school-rooms and at school-desks, as these are now very generally constructed and arranged. Second, it can be pursued by the use of text-books as other subjects are, supplemented by whatever oral teaching the teacher chooses to give, and aided and illustrated by any such simple mechanical objects as the village carpenter can make, or such as pupils can make, or pick up here and there, to form a school cabinet of objects to be given out to pairs or threes of pupils to work on together, in drawing them to scale from measurements, with text-books at hand to give the guiding principles. Then, at exhibitions, the objects (a model of a railway-switch or frog, or rail, a simply moulded wooden or stone gate-post, door, window, bookcase, dormer-window, etc., etc.,) could be shown in connection with such drawings of them as high-school, academy, or upper grammar-school pupils could easily be taught to make. Third, and chiefly, the subject, thus otherwise conveniently taken up, is also fundamental to many industrial pursuits, as already sufficiently indicated, and may therefore well precede them as a common foundation for them all.

Having now shown about as fully as can be done, short of a virtual abstract of a set of text-books, what mechanical industrial drawing

is, we will close by attempting brief answers to two broad, practical questions connected with it and with industrial education generally.

First: What, it may be asked, is to become of "discipline-studies," as distinguished from information or fact-studies? We answer by boldly denying the existence of the distinction implied in the question, and by substituting for it one that we believe to be real and applicable to all studies; viz, disciplinary, or merely fact-giving *methods*. Who doubts that even philosophy might be studied by merely memorizing the conclusions which great thinkers had reached without following their course of thought; or that Greek grammar and composition might be taught, after a fashion, as a system of facts and rules without touching the grounds of those facts and rules? On the other hand, take natural history as a subject that might be instanced as preëminently one of observation only. We observe that the bone which we call the "wish-bone" is slender and detached in some birds, and stout, short, and strongly attached to the main breast or under-body-bone in others. So far, facts; but if we search out the reason for these differences, and discover their relation to the powers of flight and the habits of the bird, we are exercising our reasoning faculties upon the subject, and making natural history a disciplinary study. To realize this far more fully, one has only to read Agassiz's writings on classification in natural history; and, in general, any subject becomes a disciplinary study when pursued with constant attention to the *why* as well as to the *what* and the *how* of its elements; and any material construction,—building, machine, or whatever else,—each of whose parts is shaped and located for a known reason, is, at bottom, as truly a piece of intellectual composition as is a printed paragraph, in which each word is chosen and placed as it is for a conscious reason.

Second: With society so much divided, as it would seem that it might be by so much added variety in education, and by so many different schools as industrial education would introduce, how is it to be kept as homogeneous in character, feeling, and spirit as is desirable, — yea, indispensable, — for the best welfare of a people? The grand importance of the question justifies a reference to the highest themes in reply. Evidently it is to be done by something common to all, and immeasurably above the separate studies and pursuits of each; by some all-embracing interest, so grand, so lofty so enduring, so inspiring, as to sink out of sight, or fuse together into one, all, and all manner of merely earthly distinctions. The universal study of any one agreeable and elevating subject, as music, morals, or a pure literature, or the cultivation of any one ennobling

sentiment, as patriotism, will do something. But what, that the heart or wit of man can conceive, can compare with universal recognition of "One Lord, one Faith, one Baptism, one God and Father of all, who is above all, and through all, and in you all," and that "One is your Master . . . and all ye are brethren," who should ever be "in honor preferring one another"; that the really greatest is he who serves most and best; that there are "diversity of gifts, but the same Spirit"; and "diversities of operations, but the same God which worketh all in all," and, in a word, the recognition of the whole collection of blessed and glorious truths and counsels which shine throughout the New Testament as the stars in the firmament,—each imperishable, and differing only as "one star differeth from another star in glory."

With unity in such sentiments as these, maintained by spiritual education of a high order, there need be no fear of estrangements or jealousies, however great the diversities of gifts and of operations, or of the agencies which exist to cultivate the gifts and assist the operations.

THE ORIGIN OF THE FIRST GERMAN UNIVERSITIES.

BY G. G. BUSH, PH.D.

In treating of the origin of the German universities, it seems desirable to give first a brief sketch of the steps of development which preceded the renaissance or revival of classical study. This, it is thought, will be readily conceded when it is shown that in Germany the universities were largely reproductions under new conditions of that which had long existed, while in Italy, France, and England they were, in a certain sense, new creations.

The Dark Ages.—During the period known as the Dark Ages there was in reality much intellectual activity. This is especially true of the century that produced so remarkable a man as the Venerable Beda. The period of his life,—the close of the seventh and the beginning of the eighth centuries,—may well represent the time of the transition from ancient to modern history. The impression he made upon his age was evidently deepened in later times, for we find that his writings were, in the Middle Ages, the basis of most of the chronicles that were written. To Beda are we indebted for many of the treasures of ancient literature which, through his care and with the help of his fellow monks, were stored in the cloisters,—a secure refuge, as it proved, during the long centuries which intervened before the revival of classical learning. During the lifetime of Beda many schools were established in England and Ireland, some of which, as at Canterbury and York, gained in the next century great celebrity, but were eventually swept away by the plundering Normans and Danes. Near the close of the ninth century education found a noble patron in Alfred the Great. Not only did he establish common and high schools throughout England, but he was also the founder of the University of Oxford, to which he assigned three buildings to be devoted respectively to the study of grammar, philosophy, and theology.

In the year that Beda died (735) Alcuin,—who was in some sense his successor,—was born. Though England was his birthplace, the period of his active life belonged rather to France and Germany, where he had the oversight of the schools established by Charlemagne. Of these schools the best known were at Tours in France, and Fulda in Germany. It is doubtful if they did more than impart a knowledge of the rules of grammar and rhetoric, and enable the pupil to

write in indifferent Latin, and yet their influence was widely felt in the eighth and ninth centuries. The successor of Charlemagne continued to them the royal favor, and endeavored to establish others in Italy, but the time had not yet come for an intellectual awakening. Even among the best educated an acquaintance with Latin was looked upon simply as a key to ecclesiastical study. Greek was wholly neglected, and in the main the object of classical knowledge misunderstood. Such was the condition of culture at the close of the ninth century.

The century that followed has left almost no record in history. Fortunately, however, the gross ignorance which characterized it proved but the darkened portal of a new era which was to be ushered in during the eleventh and twelfth centuries. By a near view of the history of the period at which we have thus glanced, it will be seen that the term Dark Ages is not wholly felicitous, and, if admitted, can apply but indifferently to Western Europe, and not at all to Constantinople, which remained continually the seat of learning. Men versed in Greek literature formed the Byzantine Court, and the emperors, especially in the eleventh and twelfth centuries, distinguished themselves in the fields of dialectics and philosophy. It was also the golden period of Moslem rule which witnessed in Bagdad the rise and fall of a nation of no mean advancement in material wealth, or in literature, science, and art. Yet this intellectual activity in the East (and of the Moors in Spain) had no perceptible influence upon the West until in the fourteenth century, when, through the exertions of Petrarch and Boccaccio, Greek teachers were invited from Constantinople, and a study of Greek literature was revived in Italy.

The Rise and Influence of the Universities. — Since the twelfth century the universities have exerted a commanding influence upon the mental condition of Europe. The character of this influence has been in reality everywhere the same. In comparison, however, that of the earlier universities was much the greater, because books were then rarely accessible. These first schools originated somewhat after the Socratic method, and were not school-establishments in the usual sense of the term, as they were independent of State power, and realized in so far the idea of a literary republic. A man of acknowledged talent gathered about him a circle of students; in time this circle enlarged, other students were added, and thus by a kind of necessity a permanent school was founded. Knowledge was imparted almost wholly through verbal instruction, and yet so great was the fame of some of these schools that students traveled

over a continent to enjoy their advantages, and retained connection with them through many years. Their prosperity, however, was not permanent, but varied from time to time, according to the popularity and distinction of the leading men of each.

Among the earliest universities there were three which seem to have had an equally high claim to consideration. These had been established at Paris, Bologna, and Salerno, and were devoted respectively to theology and philosophy, to Roman law, and to medicine. Exact knowledge of the origin of Salerno is wanting, but it is thought to have been the oldest of all the privileged schools, and, like the neighboring cloister, Cassino, to have owed to its position and to the commerce of the city its early and intimate acquaintance with the healing art of the Greek and Saracen physicians. It seems to have had no influence upon the form of the later schools, for these were modeled after the universities of Bologna and Paris. Bologna is said to have served as a model for Italy, Spain, and France[1]; Paris for England and Germany; but this can only be true in part, and it is to be specially remembered that the Reformation gave to the German universities a freer character. The contrast between the Paris and Bologna universities may be seen in the fact that in Paris the teachers were the corporation,—in Bologna, the students; in Paris the theological students had acquired in the cloisters the feeling of dependence,—in Bologna the republican spirit was predominant.

University of Bologna. — Unless we accept the work of Forenghari, there is unfortunately no complete history of this university. In the archives of the city of Bologna two different foundings are given. The earliest date places its origin in 433 A.D., and names as its founder the Emperor Theodosius II. It is more probable, however, that its growth was gradual, and that for a long time there was no corporation and no constitution, but that, finally, as the number of students increased, its rights were acknowledged by the emperor and a real university began to take form. The first fact of which we have certain knowledge is the "privilegium" granted by Frederick Barbarossa, at Noncaglia, in 1158. At the close of the twelfth century, when the first rectors were chosen, a conflict arose between teachers and students respecting the executive authority. As the right to exercise it was claimed by both parties, the settlement of the question was left to the Pope, who decided in favor of the students, and the rector,—who was the acknowledged head of the university,—was then chosen from their number. There was originally at Bologna

[1] It is noteworthy that the French schools were modeled after Bologna, and not after Paris.

only a school of law, and this was divided, according to the locality from which the students came, into Citramontane and Ultramontane. But some time in the thirteenth century, schools of medicine and philosophy were established, but their right to form a component part of the university was not conceded until 1316, when they were allowed to aid in choosing a rector. To these a school of theology was added about 1360 by Pope Innocent VI., and at about the same time a second school of law with a separate rector. The rectors were chosen annually, and, as a pre-requisite to election, each candidate was required to subscribe to the following: That he had been a student of law for at least five years, was a member of no cloister, a *clericus*,[1] unmarried, twenty-five years old, *and rich.*

The title *magnificus* was first given to the rector in the fifteenth century. Previous to this he seems to have had no special title. In 1425 mention is made of the election of a professor to the rectorship, from which we are, perhaps, to infer that the professors were enrolled among the students. The students at Bologna were divided into twenty-two nations (*nationes*), and the representatives of these,—usually one for each nation,—formed the senate or council of the rector, and were called *consiliarii.* The other public officers were a *syndicus*, who represented the university before foreign courts,—a notary, a treasurer, and two beadles.

The penalty of death and confiscation was threatened citizens, as well as native and foreign professors, over fifty years of age who should be found guilty of drawing away students to other law schools.

The title *doctor*, as well as that of *magister* and *dominus*,[2] was in use at a very early period. An office cannot thereby be meant, as it did not then exist. Irnerius, one of the earliest professors, is called in the records *judex* or *causidicus*, by contemporary writers *magister*, but never *doctor.* Walfredus, who was professor somewhat later, was called doctor, magister, or judex. After the permanent establishment of this university,—*i. e.*, about 1150,—the name and dignity of doctor seem to have gained much in popular esteem. The title was then only conferred after an examination by such members of the faculty as had already received this degree. About this time doctors for each a particular grade was given. It is quaintly stated that the

[1] In general, in the Middle Ages, the universities were regarded as ecclesiastical establishments. The *studium*, originally limited to the spiritual order, seemed to be the business of the clergy, so that *scholaris* and *clericus* came to have the same meaning.—*Tholuck:* "*Academisches Leben.*"

[2] The title *dominus* originated in the time of Justinian. This emperor placed the law-school at Beyrout under the care of the presiding bishop, who became law-professor, and transferred his former title to the new dignity.

of canon law are mentioned, and in the thirteenth century doctors of medicine, grammar, logic, philosophy, arts, etc., at which time the title ranked higher than that of master (*magister*). Previous to 1304 it was given only to members of the university faculties, but after that it came to have very nearly the significance which is now attached to it.

The doctor examination was twofold, — public and private, — and examiners were required "to treat the candidate in a friendly way as their own son, on penalty of a year's suspension." The oldest known doctor's diploma is that of Cinus in 1314. Before this could be received the candidate was required to take oath that he had studied the specified time, had paid all dues, would in the future obey the rector, and not teach outside of Bologna. In 1219, Pope Honorarius III., to guard against misuse, decreed that the archdeacon of Bologna should also give his approval; but previous to this, and for some time thereafter, the degree was never conferred by emperor or pope.

The lectures began each year on the day after St. Luke's (Oct. 19th), and extended throughout the year,—the long vacation beginning the 7th of September. Including Easter and Christmas there were in all about ninety holidays. Besides these, lectures were never read on Thursday,[1] for this day, as the old records inform us, was not set apart "for the care of the body." Before the fourteenth century there were no public lecture-halls, and the lectures were accordingly held in the houses of the professors. The time was limited to an hour and a half, and the morning lectures were required to begin at daybreak and close before nine o'clock.

We have no satisfactory information respecting the tuition fee. We know, however, that a contract was always made between professors and students, and we learn that Odofredus received for one course of lectures an equivalent of $400. In other cases the fee for each hearer was fixed at a very low rate,—probably from one to two dollars. It was not uncommon for new professors to increase their popularity by lending money to the students, or, in other words, paying a fee to secure attendance upon their lectures. This, however, was considered a violation of discipline, and was forbidden, except in the case of students who had received permission to lecture gratuitously.

It was the usual custom for each student to intrust himself to one of the professors, who exercised a sort of guardianship over him during his stay, and represented him, when necessary, before the uni-

[1] The same custom is still observed in Tübingen, South Germany.

versity authorities, At a later day we find this custom in some of the German universities. In the thirteenth century there were universities at Padua, Pisa, Vicenza, Vercelli, and in other cities of Italy,—offshoots in part from Bologna, and, like most of the schools of the Middle Ages, devoted to the study of law.

University of Paris.—The reputation of this university reaches, also, much farther back than the mention of any definite constitution. As early as the twelfth century, men renowned for their scholarship, were found here both in the departments of Theology and Philosophy. The oldest authentic documents are two decrees of Pope Alexander III. (c. 1180), which relate to the right of the chancellor to receive fees for granting permission to lecture. In a decree of Innocent III. (1198–1216), the word *universitas* first appears. Previous to this, and for two centuries following, the usual expression was *studium generale.*

The University of Paris called itself the daughter of the king, and yet it owned no buildings, and was in other respects so poor as to be obliged to seek shelter in the cloister.

Statutes were enacted by the different faculties trom time to time to meet special cases; and some, especially at the close of the sixteenth century, were similar to those already in force in other universities, but a complete statute-book never existed. In Paris the professors and, in exceptional cases, other masters of arts or doctors, constituted its senate or assembly, and the university was never divided here into two or more separate bodies, as happened at Bologna. The professors and students at Paris, without reference to their departments of study, belonged to four "nations" which received the names of France, England (later Germany), Picardy, and Normandy. These nations, represented on public occasions by their procurators, exercised a controlling influence in university life. It is true that the faculties were represented by their deans, but the faculties themselves were members of these nations.

In the middle of the thirteenth century a difficulty arose respecting the Mendicant Friars, — who attempted to force their way into the university chairs, — which resulted at first in the withdrawal of the theological faculty, and later of the faculties of medicine and law. Soon after this the four nations came to be regarded as the philosophical faculty,—that is, the College of Liberal Arts. Henceforth the four departments of Theology, Law, Medicine, and philosophy had mostly separate lecture-rooms and churches, and to this period properly belongs the origin of the four faculties.

The *collegia* or colleges were originally intended for poor students,

and were common to Italy, but did not exert the influence there, or reach that development which gave them their great popularity in France and Germany. Their organization and rapid growth will be, perhaps, best seen in Germany, where, as in Paris, they came in time to be vast boarding establishments, and included nearly the collective body of the University. The head of the University of Paris was the rector,—the choice being made by the professors of the philosophical faculty, as the members of the other faculties were neither eligible to the rectorship nor permitted to share in the elections. Later the concession was made that the deans of the three other faculties could share in the deliberations. When, therefore, an election took place an electoral college was first chosen,—each of the nations being represented by a single elector,—and this college chose the rector. At first the elections were held every four or six weeks, but after 1279 only at intervals of three months. The sole condition of eligibility, aside from that already named, was that the candidate for this office should be unmarried.

The University, as a whole, stood originally under the jurisdiction of the king in person, but after the middle of the fifteenth century under the Parliament of Paris. Criminal matters, which, after about 1200, belonged to the spiritual court, were transferred to this parliament. The civil jurisdiction, which had also been exercised by the spiritual court, was intrusted in 1340 to the Provost of Paris. To the university court belonged the settlement of difficulties between professors and students, the jurisdiction in case of insults to the rector, violations of discipline on the part of the students, and like infractions of order. The usual punishment was by scourging upon the naked back in presence of the rector, and this alike to students and *baccalaurei*. This form of punishment is mentioned as early as 1200, and was still very common more than two centuries later. In addition to the officers already named, there was a *conservator* appointed by the Pope, who, when the spiritual privileges were violated, tried both civil and criminal cases.

In the early period of its history the University of Paris was looked upon preëminently as a theological school, and the professors, whether theologians or not, were forbidden to marry. The first to obtain a release from this prohibition were the medical professors, in 1452. For the law professors it remained in force until 1600, and for those of philosophy until comparatively recent times.

It is said that the tuition-fee in this university was properly voluntary. From the poorer students nothing was expected, and from the rich not more than six ecùs (c. $12) a year for each professor whose lectures were attended

If we compare this university during its early history with those of neighboring lands we shall see that it had much greater influence in the councils of church and state, and, besides, aided more powerfully than all others to give form and character to the new universities of Germany.

The New Era in Germany.—Before the opening of the twelfth century the parish and cloister schools were common to all portions of Germany, but of their origin and development during the two or three centuries preceding very little is known. With the twelfth century begins the intellectual activity of Germany. The spirit that had been aroused in Italy and France was caught up and found a permanent home here, where a zeal for knowledge has ever since been a special characteristic of the nation. German students wandered to Italy and France, and entering generally the universities of Bologna or Paris, sought to gain there the culture which their own land could not give them. This had not long continued when a desire was awakened for similar high schools at home, and this found expression at the Lateran Council of 1215, when Pope Innocent III. ordered that in every cathedral school there should be at least one master of arts, and in the chief cities also a master of theology. In consequence of this decree there arose at the beginning of the thirteenth century a *studium particulare* in the church of St. Veit, connected with the castle of Prague. Here lectures were delivered to the native clergy and courses of study pursued, but the academical degree conferred was valid only in Bohemia. When, in 1248, Ottakar II. endeavored to dethrone his father, King Wenzel, the school was necessarily affected by the commotions of the time, but soon thereafter regained more than its former prosperity, and was frequented not only by students from Bohemia, but also from Austria, Bavaria, and other neighboring lands. Lectures were read upon grammar and logic and the *librōs naturales* of Aristotle.

At the close of the thirteenth century an effort was made to found a university in Prague after the model of Paris, but met with much opposition from the States of Bohemia, who feared that an increase of learning would endanger their power. A half-century later (1346), when Charles IV. mounted the throne of Bohemia, the circumstances were more favorable, especially since he, as co-regent with his father, had already gained the confidence of the people. Still the civil and moral condition of the European States at this time was most appalling, and the magnitude of an undertaking that must necessarily array against it an established spiritual power, whose permanency would be endangered by the removal of ignorance and oppression,

was exceedingly great. Besides, the evils to be overcome were continually increasing. Among these was the practice of unparalleled extortions, senseless displays amid their court scenes, and unchecked extravagances on the part of the nobility which had naturally caused an estrangement to grow up between people and rulers. Unfortunately the papacy was then supreme, — emperors and kings, nobility and clergy confessing their allegiance to it,—while the pontiff, with empty arrogance and blasphemy, was claiming for himself not simply divine attributes, but mercy more infinite than the Saviour's, saying that he "alone could save souls from purgatory, and a special heaven was his sure inheritance." While it seems necessary in general to condemn the influence of the spiritual orders, this praise should not be withheld from them that behind the walls of their cloisters they preserved an interest in agriculture, commerce, science, and art.

As early as the thirteenth century the writings and teachings of some of the foremost men of France and England found their way to Germany, and had no little influence in shaking its future history. Though the masses were mostly ignorant and superstitious, there lay dormant in them a desire for freedom, which, when aroused, scorned all subjection and defied inquisition and prison-walls. With the watchword of "Chain not the spirit!" a struggle for culture began,— only the more ennobled by every hindrance, — such as scarcely any other century has witnessed.

Thus it happened that the cry which was long before uttered, and which came in part from the cloisters, found a fitting response in the free republics and other corporative unions which were established in the interest of human rights. The good accomplished by these republics, which arose in Italy and ruled half the world through their commerce, cannot easily be over-estimated. The same may be said of the German cities with their firm alliances which they had formed partly with one another and partly with the south and southwest of Europe. Civilized Europe was thereby transformed into a commonwealth founded upon the rights of citizens, and closely united through commerce and other interests to the welfare of the cities. By conceding that differences of religion and national characteristics might subsist together, a sure basis was laid for industry and trade, for art, and for the freer development of scientific institutions. So great had the evils of the church become that the authorities of the cities determined to abolish the spiritual sovereignty. In this they were aided by most of the leading men of the time, who, severing their connection with the clergy, formed themselves into an independent body. Their power was first felt in the establishing of secular

schools, and as these grew in consideration and influence the schools of the cloisters suffered a corresponding loss. The new schools were in reality unions which, through endowments and the granting of privileges, acquired in time a fixed location whereby the transition to those free corporations, which were recognized by the states or cities as necessary, was made easier. Like so many corporations of the Middle Ages whose privileges were securely guarded, these also under the protection of the government reached their full development.

THE TEACHING OF DRAWING IN GRAMMAR SCHOOLS.

BY WALTER S. PERRY.

It is admitted that the public schools cannot give what is called a technical education,—that is, an education which shall prepare for particular trades or industrial occupations; at the same time the growing importance of these occupations makes it necessary that in our public education we consider their demands in our provisions for the development of manual power, skill, and taste. What our public schools can give in the way of industrial training, which shall at the same time be of fundamental value in general education, is one of the important educational topics of the time.

A strong conviction is arising in many minds that more attention should be paid to manual training in education than hitherto, and we have heard much on this subject in educational conventions. Now it must be admitted that before there can be any broad development of manual training in the schools, or technical or industrial training of any kind, there must be broad, general instruction in industrial drawing. This fact is so generally recognized, that in Prof. Thompson's valuable essay on "Apprenticeship Schools in France" we find these words: "Technical education without education in technical drawing is a delusion and a sham;" and in a report by a distinguished French commission on industrial education are found expressions equally strong in regard to the importance of drawing as a basis for industrial training.

The introduction of drawing, therefore, into public schools should be regarded as an important step toward general industrial education, and in view of this fact, what is taught as drawing in the schools becomes of the utmost importance both practically and educationally.

The subject is comparatively so new a one in education, and efforts to introduce it into schools have been so independent of one another, that there has been no opportunity till now for a general exchange of views and a comparison of results. Further than this, teachers of drawing have hitherto labored quite independently of one another, and have found it extremely difficult to get any proper recognition of the study in their respective schools. Let us hope, however, that this discussion inaugurates an era of conference dan-

coöperation in this matter. The field before us is a broad one, and to guide us we need all the light that experience can give. Industrial education is becoming a question of great importance, and drawing is seen to be one of the fundamental elements in this education; yet it is a significant fact that there are but few trained teachers directing the study in the schools, while some of the very largest cities have only one teacher of drawing for all their schools. We need to elevate the educational and practical importance of the subject before the public; to make clear the aims of our instruction; and as the first step to this end, we should endeavor to come to some general agreement in regard to what is to be taught as drawing, and also in regard to proper methods of teaching.

How is Drawing Usually Taught?—It has been remarked that it is quite universally recognized that drawing should be taught in the public schools, and in the best schools of the country it is taught, but *how* is it taught? I think I am safe in saying that in more than half of the schools that claim to teach drawing the subject is merely mentioned in the course of study, and not much else can be said in regard to it. Vague directions are sometimes added, but these are of little practical value to the teachers, who, left without any intelligent idea of the object or aim of the instruction, do little or nothing with it. In many places where special teachers are employed, and where regular work is attempted, there is not a fixed purpose or aim in the instruction, and the system or method is therefore changed as often as there is a change of teachers; in fact, schools might be mentioned which have been experimented upon with three or four different systems in as many years.

Under this condition of things, with no fixed principles established, school committees are at the mercy of agents of so-called systems of drawing who crowd upon them from all parts of the country; and the average committee is puzzled to decide between their conflicting claims. With rare exceptions, the member of the school board is entirely ignorant in regard to the study; his ideas of its practical and educational value are usually of the vaguest kind, and quite possibly he regards it as an ornamental study only. Such persons see nothing that looks pretty upon the printed page; a skillful agent dwells upon the training of the eye and hand, and the necessity of securing more beauty in our industrial objects; votes are secured, and the question of industrial training in the schools of communities may be given in an entirely false direction. Teachers and children accept the inevitable, and boldly plunge into work of which they understand neither the object nor nature.

And with all due respect to my co-laborers, I must say that the ideas which prevail among teachers of drawing, themselves, have tended not a little to add to the confusion of mind which prevails in regard to the nature and educational treatment of the subject. Some think drawing means one thing, and some another; and the member of the school board may well look puzzled, and ask what is meant by drawing,—what are the underlying fundamental principles,—when we, as teachers, say there must be taught Freehand Drawing, Model and Object Drawing, Dictation and Memory Drawing, Geometrical and Mechanical Drawing, Perspective, Historic Ornament and Design; a nomenclature that is enough to discourage any teacher or committee. All this tends to confuse, because it is not an educational arrangement. Is it not time for us to get out of this vague, indefinite, into some more coherent method of work? To make a beginning in this direction, it seems to me, is our duty and privilege.

What is Drawing?—Drawing is the language by which a true idea of the form, the appearance, and the decoration of an object is conveyed from one person to another. It is the main language of the skilled constructive industries, and its importance to the designer and artisan is only comparable with reading and writing. Consider for one moment that wonderful piece of mechanism that breathes the breath of steam; who has not seen it, as the piston moves swiftly backward and forward with the same steady motion? The various parts move in their allotted places. As the great wheel turns, electric life seems to fly along the belt; pulleys and shafts catch the spirit, and drive here and there the endless number and variety of machines, ever changing raw materials into goods necessary for our life and comfort. Again, look at our buildings, at our ships that sail the sea, laden with the commerce of the world,—all these and the thousand and one industrial objects about us, intricate in design, wonderful in construction, beautiful in ornamentation, were first conceived in the brain of man; but their construction has been made possible mainly by the use of this language-drawing, which enables the designer to express the minutest fact in their construction so as to be readily understood by the workman, and embodied forth by his skilled hand.

General Divisions.—Inasmuch, then, as drawing is the universal language of our vast manufacturing industries, it certainly would seem that the drawing which we teach in the grammar schools should be such as will include the elements of this all important means of expression.

But drawing has applications not alone in the *construction* of

objects; it is the principal means by which we express ideas in regard to the *appearance* and *decoration* of objects; so that the subject considered as a whole may be regarded as embracing three fundamental divisions:

Construction—Drawing as applied in industrial construction,—the making of objects.

Representation—Drawing as applied in representing the appearance of objects and of nature.

Decoration—Drawing as applied in ornamentation.

Sound instruction in drawing means teaching a knowledge of form and its application in these three divisions.

Subject-matter to be Taught.—We have seen that the subject has a threefold division into Construction, Representation, and Decoration. These three are but two kinds of drawing, so far as execution is concerned,—that done by the free hand, and that done with instruments,—under these three general divisions of the subject we may teach the various kinds of drawing known as freehand, dictation, memory, object, geometrical and mechanical drawing; but with a double value, inasmuch as the varied work, whether it be freehand or instrumental, may be so planned that it will tend toward one or more of the three general divisions of drawing.

Let us consider briefly the details of these three divisions, and first in educational and practical importance must we place the division of

Construction.—I think that drawing has failed to receive just recognition because of the failure to recognize the great importance of the constructive division of the subject. This forms preëminently the educational and practical side, and yet it is the one which has usually been ignored, while the pictorial and decorative sides have been given undue prominence. The fact that drawing is so often spoken of as an ornamental study by well-informed persons is proof that its educational and practical value has not been at all comprehended. A great many say, in support of the matter, that drawing is important; but why is it important? When these æsthetic advocates of drawing are brought to the point of defending the practical importance of the study, they cannot tell *why* it is important; they are at a loss for good and substantial reasons. They aim to give what they call training to the hand and the eye, but this, though very important, is very indefinite in its results, and does not touch one of the most practical reasons for making drawing an important branch of education. We must recognize that it is the practical usefulness of drawing in adult life that warrants its introduction into the

public schools, and we have only to examine how it is made use of in our constructive industries to see that the constructive division is not only the most practical division, but at the same time the most educational one.

When drawing was first introduced into the schools, one of the chief reasons given why it should be taught was, that children might learn how to make and to read working-drawings before passing from the school to the workshop; but nowhere could be found a system of books that brought the subject down to the grammar schools; and, as a teacher, I felt somewhat afraid I would be questioned upon the matter. Not a book had I to show which held between its two covers one single drawing that represented the simple projections of a common object so arranged as to give a pupil, or teacher, any idea how such drawings are made use of by the artisan.

And when I first suggested to a gentleman, who is now doing very much to develop this feature in the public schools at large, that in our middle schools this subject must be taught, I received this answer: "I see its great intrinsic value, and I hope soon to see it introduced into the lower schools; but at present it cannot be taught; teachers would cry out against it as a subject too difficult to teach, and the opponents of drawing would say we were endeavoring to teach orthographic projection, and would thus frighten timid people with the very word."

Allow me to add, that this subject of constructive drawing, or the making of working-drawings, has been taught for several years in the schools of Worcester. I have found it a feature that develops from primary object-teaching of form without a break; that is readily comprehended by teachers, and the one subject in which the pupils are the most interested.

Why has Construction not been Taught?—I believe it has not been taught in the grammar schools hitherto because it has been thought necessary to treat it scientifically, as laid down in the regular text-books on orthographic projection, with the various planes of projection, etc. I have in my possession a small book, intended for grammar-school use, written by one who holds a prominent position as instructor in one of our leading institutions, yet I cannot believe the author ever taught a class of young pupils for five minutes. He begins with the projections of points, lines, planes, etc.; projections of things which cannot be presented in solid form, and the treatment of which does not appeal at all to the perceptive faculties of pupils. Now working-drawings are simply drawings that tell the facts about objects, consequently, to teach such drawing in the schools we have

only to teach pupils to observe the facts of objects, and then to express by drawings in the simplest way, by the free hand or otherwise, what they see; and I hold it to be an educational absurdity to require pupils at this stage to learn about planes of projection, and all that is usually first presented under the head of orthographic projection, and a great wrong to the pupils to omit this feature till they are of an age to comprehend such a scientific treatment of the subject.

Geometry forms the basis of all drawing. This point is so well established that it needs no comment, but in answer to those who claim that pupils, when they begin the study of working-drawings, should learn just what is meant by that projection which is made by drawing lines, from every point to be projected perpendicularly to the plane of projection, and learn to work to scale, etc., it may be asked, Is it necessary that pupils should learn to demonstrate theorems in geometry before practising geometrical construction? Indeed no, and so I say that drawings expressing the facts of form, executed, they may be, roughly by the unaided hand, may be made to convey unmistakably the relative dimensions and positions of all portions of an object. And this kind of freehand work is as valuable as any other, as regards the training of the hand and eye, while it possesses an educational value not to be compared with that attained through the mere copying of abstract forms.

How is Construction to be Taught?—Inasmuch as in this paper I must give my own methods of instruction,—knowing full well that they offer many opportunities for improvement,—an outline of the work in this division is presented with the accompanying illustrations, in order to bring the nature of the work clearly before you, that it may be readily comprehended by those who will take part in the discussion.

A cylinder, a square prism, a double cone, and a piece of paper oblong in shape, and in size about equal to the upright view of the cylinder or block, are taken into the school-room. It is explained to the pupils that they are to learn to make just such drawings of the first three objects as a carpenter would require if the objects were to be constructed from drawings; and after a much fuller explanation than can here be given, a drawing is made on the board to represent the side or upright view of the cylinder, and at the same time, the pupils are questioned in regard to the various lines necessary for its construction. An upright view of the square prism is then made in the same manner, and afterward one of the paper. The three drawings are yet all alike; they are oblongs, though made from

different objects. If now the pupils are requested to observe the thickness of the objects, they see the necessity of other representations to fully describe and to distinguish them. If they are asked to state what should be drawn to represent the other view gained in looking directly at the end of the cylinder,—the other fact of the solid,—the true shape of the end is perceived, and the answer is "A circle." Now by continuing the vertical lines of the oblong upward, by dotted lines or lines of projection, and drawing the circle to touch these lines, all the facts of the form of the cylinder are expressed. This much being done, pupils will see at once what is necessary to express the facts of the square prism and piece of paper,—the adding of a square and a straight line. By proper questioning the pupils are led to see that something more is needed, that the length and breadth are to be shown in feet and inches, and the manner of indicating feet and inches by the signs in use may be explained.

Following this, in a similar way, working-drawings are made of other simple objects, from directions elicited from the pupils.

Children are exceedingly interested in this, their first lesson in making working-drawings. It is a revelation to them, a practical illustration of drawing being used as a language to communicate ideas; and besides the practice in drawing which the pupils have, is not such work most valuable in training the powers of perception and comparison, thus daveloping the thinking-power? And just here may be mentioned the great differeuce it makes in the interest, and I may say value, of the exercise if the pupils are required to make the drawings as though they were the working-drawings for a carpenter, to be used for practical purposes, rather than the simple representation of dry facts.

Foreshortening in Construction.—Owing to the foreshortening of lines and planes, there may be found some trouble at first in teaching the geometric views of some objects. Take the steps for illustration. Pupils see at once what the end view should be, because all lines to be represented are in the same plane, but with the front view it is different. If, however, we cover up all the steps of the model with our hands, except the first or lower step, and ask what should be drawn to represent that alone, there is no hesitation,—the answer is, "An oblong." By covering all but the second and leaving that exposed, the answer is the same in regard to that; and so with the rest. The pupils are led to see that the combined height of all these oblongs cannot be more than the height of the steps as seen in the end view,—that the steps can be no higher when seen from the front than from the end; and so, with fuller explanations than this paper

admits, they are led to see the proper height and position of all the oblongs, and the best way to draw them.

Similar explanations might be made of the manner of drawing the triangular prism, the top view of the square pyramid, the top view of a common bell, and the different geometric views of other objects.

In What Year is this Work to Begin?—At the present time in Worcester, where children spend nine years in the schools below the high school, and begin their school-life at the age of five, this particular kind of drawing, of representing intelligently two or more views or facts of a solid, is begun in the fifth year. It might perhaps be commenced earlier with profit; but in the years previous the work is of that nature in the representation of one view that this is only a continuation or further development; and considering all the other things to be attended to in the first two years that children use books, and as the subject matter extends over the period of five years before the pupils graduate from the grammar schools, it seems to me it is quite early enough.

But you may ask, "How is this subject to be continued? Is this matter of making working-drawings to be carried out by free hand through all these subsequent school years?" Pupils throughout the whole course in drawing have much practice in free-hand work. I think that in about the sixth year this particular division of the subject should be placed on a more thoroughly geometric mechanical basis. Geometry, as has been said, forms the basis of all drawing. The children in their early training become familiar with all the principal geometric forms. They make use of them in many ways, and in their first work in construction they represent free-hand the geometric views of the simple objects used.

Now in about the sixth or seventh year of school it is customary to introduce geometric problems in addition to the various kinds of free-hand work; and what are these problems? They mainly relate to the drawing of lines in all their geometrical relations to each

NOTE.—A teacher in one of our schools has found this constructive drawing of great assistance in teaching arithmetic, when surface areas are to be determined. For instance, if the surface measurement of a box is required, the plan, and side and end elevations are drawn to scale, and the measurements marked on the drawings. Having these drawings before the eye, the pupils readily work out the problems. In looking over a set of arithmetic papers, I observed on each paper, drawings which represented the four sides of a room, with the doors, windows, and base-boards correctly located, and with the various measurements indicated on each. The pupils were required to find how many yards of wall paper it would take to cover the walls.

The teacher informs me that in every case, where the work deals with objects, drawings to scale are first made of the objects, and, as a consequeuce, the pupils understand much better the problems, and much better results are achieved.

other; to the accurate construction of angles and the plane geometric figures. Now, instead of giving so much attention as hitherto to the construction of these forms abstractly, I would advocate more attention to the application of plane geometrical drawing to the construction of plans, elevations, and sections of solid objects; these drawings to be made to scale. By so doing we shall bring the study of practical geometry in the schools to definite practical results.

Representation.—I have dwelt upon the subject of Construction so long that it may have seemed to you that I came here with only this one thing in mind. Not so, however; a little space has been left in which to discuss Representation and Decoration. They have been accorded a second place in this paper for several reasons, one of which is that they have for a long time held prominent places in the schemes of drawing, while Construction has not until recently been even recognized. Moreover, I wish to show that constructive drawing forms the basis of representative, and in a measure of decorative drawing.

To ask pupils to represent an object pictorially, before the facts of its form are known, is a great mistake. But in many books, and also schools, the work is so arranged that pupils copy pictorial representations of objects, and also draw directly from the objects themselves without the slightest idea of the geometrical construction of the same. One might as well copy a picture of a house without any idea of the laws of perspective, aud expect that knowledge would be gained thereby.

How can the Pictorial Representation of Objects best be Taught?—This branch of the subject, if strictly carried out, requires more individual instruction than any other. No two pupils see the object alike, and in our crowded schools of forty-five and fifty children, with no conveniences for object-drawing, and at the best but a small number of models to draw from, the question how it should be taught so as to be of the most profit possible to the pupil, is one which has troubled many, and has not yet been very satisfactorily solved.

We must, of course, begin with circular objects. The appearance of a circle in different positions of obliquity to the eye can be explained by the use of a large circular piece of paper or cardboard in the teacher's hand. After the proper practice by the pupils in drawing this in different positions, and in the use of the pencil in determining the proportional measurements, the various cylindrical objects are to be used; but how are the drawings to be made? Are they to be made directly from the object?

Unless a room is very well adapted for object-drawing (which is

rarely the case), and there is but a comparatively small number of pupils, my experience is that the results are very unsatisfactory if the pupils attempt to draw directly from the object. I will make a short quotation from a former address which will explain in part my method of work:

"If the space is to be filled with a cylindrical object, a cylinder, double cone, or vase may be used, and either the proportionate lengths of the various construction lines be given, or some one or more pupils may be required to work them out directly from the object. When these are sketched by all of the members of the class in their books, of one pupil may be asked what should be drawn at the top and bottom, and center if required, to represent the object, as he sees it; the width of one ellipse compared with another, and similar questions. Of another may be asked, what should be drawn, supposing the top to be on a level with the eye; of another, the center; and in this way each pupil in the room may be questioned about some one position, and then all be required to make a drawing of the object in one of these positions, which should be named by the teacher, that all may do the same. Their imagination is brought into play, and they learn to exercise their reasoning faculties. *Mentally* they all draw from the object; uniform and accurate work is the result. In a similar manner might be explained how rectangular objects, rings, square frames, and other objects in different imaginary positions are drawn by pupils; but this would lead to too much detail just now."

But some will say: "This is not model-drawing; we cannot call it model-drawing unless sketches are made directly from the object, and all measurements taken therefrom."

This I will not discuss, but will simply say that when the pupils take up drawing in the high school, and are given a group of models from which to make their first drawings in the prescribed course, but comparatively few need or receive much help, as they have become so accustomed to drawing in the most common positions the different geometric solids. Can we do much in the limited time devoted to drawing if we do not give some time to class work?

In this connection I will say that it seems to me well to have the constructive drawing of the object directly precede the representation, as many of the mistakes in representation are due to a failure to understand correctly the facts of the solid. On the left half of a page, therefore, the pupils may be required to make working-drawings of the object, while on the right half the appearance of the object in some familiar position may be shown.

Representation I would treat, therefore, as complementary to a study of the facts of objects,—to the construction of objects.

One point more: The drawing from objects in grammar schools should be from simple forms. It is a great mistake to require pupils to work from objects so complex in form and detail as to confuse pupils with too many lines. We should recognize the fact that instruction in drawing is primarily instruction in *seeing*, and that pupils fail in drawing more from inability to see than from inability to draw,

Decoration.—The term decoration is sometimes so used as to imply that it includes design, and all original designs, so called, must be arrangements of lines, units, and conventionalized forms in such a way as to cover a given space.

"Design," says Redgrave, "has reference to the construction of any work both for use and beauty, and, therefore, includes its ornamentation also. Ornament, on the other hand, implies merely the decoration of an object already constructed." Under the head of decoration, therefore, we are to teach simply surface decoration. I have remarked that construction not only is the basis for representative drawing, but that in teaching drawing in the public schools, where we have young children to deal with, constructive and decorative drawing are closely connected. The pupils must be led from simple to complex things through the illustrations gained in the use of familiar forms, and to know these familiar forms thoroughly they must become acquainted with all the facts of these forms.

Shall pupils be given geometric figures in which to make accidental combinations of straight and curved lines? I believe not. They should, rather, first learn to design good forms,—to design units. But how? I hear one say, "By copying ornamental figures in their drawing books, they gain a knowledge of good form;" but pupils do not gain that knowledge of good forms through the mere copying of them that one might suppose. The copy is before them and they see but one line at a time,—the line they are drawing; they make an accurate copy of the whole by accurately copying each line, while a thought of that which gives beauty to the whole does not, except rarely, enter their minds. They should, certainly, be trained to consider the whole form; but this can be done in no better way than by requiring them to imagine and draw forms for themselves; and these forms must first be familiar objects upon which they can use their reasoning faculties in regard to usefulness and appropriateness, and can be not only seen but handled.

As a proof of what has just been said about pupils not gaining a knowledge of forms through the mere copying of them, I offer the following.—an exercise given several years ago in all the schools of

the two highest grades. The pupils drew the construction lines for a vase, and were then told to draw a vase of good form similar in construction to some one of those previously drawn from copies in the book. But they were at a loss to know what to do. In some cases I made sketches on the board, and then quickly erased, in order to offer some assistance. The results were a great surprise, and were the same everywhere. I could hardly believe that those pupils who showed me such excellent copies in their books could be guilty of making vases so ugly and so useless in construction.

I think that pupils should no sooner begin to draw, say vase-forms, than they should learn to construct or design vase forms. I do not mean construct something entirely different from their copies, but they should learn to construct a beautiful form without a copy before them, and to know what gives to it its beautiful appearance, and to make from an ugly copy a drawing of good form. Having done this kind of work in the construction of familiar objects, they are better prepared to draw abstract figures or units, which units may afterward be incorporated into designs for surface decoration.

As the pupils advance from one grade to another and become acquainted with a greater variety of forms, both in the concrete and the abstract, their work of this kind, of course, advances from the simple to the complex. A drawing of a vase of a new pattern, or of an ornamental figure, may be put upon the board, analyzed before the class, and its various features explained. Rough sketches may be made to show how slight changes in parts would rob the whole of its beauty; and after everything possible of this kind has been explained, the drawing should be erased, and the pupils told to make a similar drawing, of good construction if a vase, and of a good decorative design if an ornamental figure; remembering that to reproduce exactly the drawing on the board should not be the principal thing in mind, but rather to construct or design a figure of good form, with all parts bearing the proper relations to each other.

Having found such work so very valuable in educating the eye to perceive good form in the construction of simple objects in the lowest grades, I think that one of the first things children should learn to do in decorative drawing is to design, in a similar way, simple ornamental figures symmetrical upon an axis. These figures may afterwards be combined to fill geometric forms; and when pupils have become familiar with simple units and the combinations of these units to form surface designs, they will be prepared to conventionalize leaves for purposes of design,—first from copies and then from the leaves themselves.

I have mentioned, and very briefly explained, the three divisions under which I think all the work in drawing must come, and, without claiming too much for myself, I think I may say that any system that does not include the three distinct divisions of constructive, representative, and decorative drawing cannot be recognized as complete. The best way to teach each division may remain an open question. You are to discuss this paper, and whether you accept or not what has been said, let me again remind you, in closing, that the first duty incumbent upon us as professional teachers of drawing is to emancipate ourselves from the confusing and non-educational array of technical terms so often used, and which have been quoted, and fix upon those fundamental principles which underlie the study of drawing in the public schools, and arrange them in regard to their educational and practical importance.

DUTIES OF SCHOOL SUPERINTENDENTS.

BY JOHN T. PRINCE,
Agent Massachusetts Board of Education.

The statutes of the State of Massachusetts define only in a general way the duties of a Superintendent of Schools. They simply say that "he shall have the care and supervision of the public schools," under the direction and control of the School Committee Nowhere in the statute-book is there given to him that authority and those strictly defined duties which are given to School Committees. In fact, it may be said that the Superintendent has no authority except what the School Committee gives him. The kind and degree of authority with which he is vested therefore depend entirely upon the kind of service that is desired of him by the School Committee. He may be expected only to see that the votes of the Board are carried into effect, and to perform certain clerical duties which it is not convenient for the members of the Board to do; or he may be called upon to render that service to the schools which the School Committee cannot collectively or individually give, and which is not given by the teachers. It is not necessary to discuss the former plan, as it involves a labor almost entirely mechanical, and cannot in any proper sense be called superintendence. It is rather the duties involved in the latter plan, or what may be called skilled supervision, to which attention is invited.

It is a most singular fact that, while the necessity of skilled supervision in all mechanical and mercantile establishments is fully recognized by all, it is not generally thought of great importance in planning and carrying out a system of education; and where the office of Superintendent is made, its duties are not uncommonly looked upon as a kind of convenience to the School Board rather than as absolutely necessary to the best interests of the schools. We do not have to go far to find the cause of a want of appreciation of the duties of a Superintendent of Schools. The business of education or teaching itself has not been fully appreciated. It is only just being recognized as an art and a science even by the teachers themselves, and it is no wonder that a work which everybody thinks himself capable of understanding and doing is thought to require no special skill of planning or directing. Assuming, then, that there is no work so difficult or so important as the training of the human mind,

let us consider the part that a Superintendent may have in that great work.

In the first place, it will be seen from the very necessities of the case that the Superintendent must have ideas, and that he must be ready to use them when and where they are most needed. He should put himself, therefore, at once into the position of an adviser as well as an executor. As an adviser he has to act directly with the School Committee and with the teachers. In regard to what should he advise the School Committee? First, and most important of all, he should advise in regard to the qualifications and appointment of teachers. If the Superintendent is held responsible for results, he should certainly have a voice in selecting those who are to carry out his plans; and if he is at all fitted for the position he holds, he should understand better than any member of the Committee is likely to understand, the qualifications necessary to a good teacher. As the schools are largely what the teachers make them, there is no more important or difficult task in the conduct of our schools than that of selecting proper teachers.

Next in importance to selecting good teachers is procuring suitable books and apparatus, and it should devolve upon the Superintendent to advise both as to the kind and amount of these necessary means of teaching.

The plan or course of study is by law to be arranged by the School Committee. It is perhaps needless to say that they will rely very largely upon the advice of the Superintendent in performing this important duty. He has, or ought to have, in mind the order and dependence of the work desired from beginning to end; and the adjustment of it in terms and classes must necessarily depend largely upon the plan he has in mind.

Important as are these advisory duties in shaping the work of the schools, those which are of an executive character are even more important; for, in the performance of his executive duties, the Superintendent comes in direct contact with the schools and teachers. Classification, promotions, methods of discipline and teaching,—in short, everything pertaining to the actual working of the school,—must receive his attention. He should not only lay before the teachers his plans and purposes, but he should indicate theoretically and practically how they may be carried out, what errors should be avoided in discipline and instruction, and what methods will best accomplish the ends desired. In all this he must not only have reasons for his criticisms and advice, but he should give those reasons at all times, always respecting the intelligence and feelings of others. No-

where are arbitrary dictation and the forcing of particular methods more improper than in the school-room. In all of his dealings with the teachers he must, in order to secure the best results, gain their confidence. He must make them feel that he is not only their director, but also their helper in all that pertains to their arduous duties. One of the best means of giving assistance is the teachers' meeting, which should be held as often as once a month, and in such divisions as will best enable him to accomplish what he desires. Instruction in general principles and in particular methods of teaching each branch should be given by the Superintendent, and if sufficient time for this is not found at the regular meetings, other times should be appointed. Such instruction will be found especially necessary for those teachers who have never received instruction in the theory of teaching. In addition to general plans and methods given at the teachers' grade meetings, it will be found necessary to supplement the printed Course of Study with certain topical details that cannot be given in a brief course. Here the danger of limiting and narrowing the teachers' work must be carefully avoided. Many of the topics may well be quite general in character, the teacher being allowed to supply necessary details. But frequently there will be weak places all along the line which need strengthening. Sometimes positive and particular directions, therefore, are necessary; and the Superintendent will find the teachers' meeting a convenient place to give and explain them.

But by far the most important part of the Superintendent's work is done in the school-room. Without an intimate knowledge of the work done there, he can neither be able to point out existing errors nor suggest needed improvements. His visits will assume a threefold character; viz., (1) inspection; (2) teaching; (3) examination.

By inspection the teachers' work in the school room is seen. Such criticisms, commendations, and suggestions as the Superintendent believes to be helpful should be made to the teachers freely and candidly. Such corrections or suggestions as would be useful to all should be noted and made the basis of remarks at the teachers' meetings. Other suggestions may be useful only to particular teachers, and can best be given frequently by writing them in a note-book placed in every teacher's desk for the purpose. Such a method prevents interruption of the regular school-exercises, and may sometimes prevent ill-feeling by allowing time for reflection. The Superintendent may find it well, sometimes, to take one week for a single subject or a set of subjects. For instance, one week he may give special attention to arithmetic; another to reading, geography, and

history; a third to language, spelling, and writing; and a fourth to miscellaneous subjects, such as drawing, oral instruction, memory-work, etc. By this method he may be better able to compare results accomplished in the different schools and grades, and to correct the work accordingly.

Whenever a teacher or any number of teachers find it difficult to carry out any theory of teaching which the Superintendent has advanced, it is but right that they should request him to illustrate it with a class of children; and this request, if time permits, he has no right to refuse, even though the illustration be never so clumsy. Such failures in practice are a capital check upon visionary and poorly-considered theories. Or, if the Superintendent sees that a teacher is working upon a wrong plan, or upon no plan, it is incumbent upon him to give that teacher all the assistance possible,—and frequently the assistance can best be given by example in the class-room. Such assistance will be especially needed for young or inexperienced teachers, and as the teacher's ability is best demonstrated by his success in teaching dull and backward pupils, so the value of skilled superintendence is most felt in the weakest part of the teaching force.

The examinations by the Superintendent should be sometimes oral and sometimes written; sometimes especially applicable to a certain school, and sometimes uniform. Each method has its uses. By written examinations there are ascertained what all have really gained of a given subject, and their ability to put their acquirements in proper shape. Oral examinations test the amount of thought that has been awakened in the teaching, as well as of information that has been gained; while both kinds, oral and written, indicate to the teacher in a general way the direction that the work may take, and suggest to him new lines of thought. The giving of examinations "*for promotion*" I would not place among the duties of the Superintendent, for the reason that such examinations given by some one other than the teacher are both unfair to the pupils and detrimental to good teaching. Let us see how it is in practice. At the close of the year or term the questions are sent out to be given at a certain time, the results of which are to determine the pupils' fitness to be promoted to a higher class. The questions are largely upon matter contained in the text-book, or are upon information which has been given to all the pupils. If they are not thus made up, they certainly should be, for it would be manifestly unfair for children to be examined upon what they have not had, if such examination is to determine their promotion. Now who would say that a teacher can be

free to teach as he should, with the prospect of having his pupils examined periodically from the text-book? He must be more than human to withstand the temptation to load and overload his pupils with matter upon which they are to be examined, for he knows that not only the welfare of his pupils is at stake, but his own reputation as well. We ask our teachers to teach, and we should encourage them in it, and hold them responsible not merely for having certain facts memorized, but for awakening thought in the children, making them more eager and ready to receive knowledge. But this great work, I repeat, cannot be well done if the teacher is made to be in any degree a slave of the text-book. I might speak of the harm which such examinations for promotion have upon the health of children in causing unnecessary anxiety and excitement. But enough has, perhaps, been said to show why examinations for promotion should not be given by the Superintendent or School Committee.

But it may be asked, How, then, shall promotions be made? Should they not be uniform? And should they not be left to the Superintendent or School Committee? A brief statement of what is done in one town will explain how promotions may be made, and the part that the Superintendent may have in making them. Two or three months before a readjustment of classes occurs, the teacher fills out and sends a statement to the parents of all pupils who are not doing well the work of the school. This statement tells the parents what part of the work is not satisfactorily done, and asks for their coöperation and advice as to whether more work can or should be exacted from the child. This is repeated, if necessary, later in the term. Two weeks before the time of promotion the average of the monthly examinations of all doubtful pupils is placed upon paper prepared for the purpose. By the side of it is placed the result of the special examinations prepared by all of the teachers of each grade. The Superintendent, with the assistance of the teacher, then passes judgment upon each case. The only question is, Is this child ready to do the subsequent work?—that is, Will it be better for him to do that work than to go over again the work he has done? The results of the uniform examination and of the regular monthly examinations are carefully compared with the report of the teacher, together with the age, capacity, habits, and future plans of the pupil, and the decision is made whether he shall be promoted unconditionally, or be placed upon trial one month, or be expected to review the work already gone over.

There are other and miscellaneous duties, of which it is not necessary to speak in detail. Every one doubtless knows them,—adjust-

ing difficulties between parents and teachers, listening to grievances, attending to cases of discipline reported by teachers, and inspecting the school-houses and outbuildings. All these are necessary duties, and serve at least to fill up any spare time that the superintendent may have.

The question may be raised as to what part of the duties which have been outlined can be done by a Superintendent in a large system of schools. Where there are eighty or more teachers, it might be well to delegate certain duties to principals or others; where there are less than forty, the duties of supervising might be given too one who will employ a part of the time in teaching, if full-time service is thought too expensive. Or, what is much better, small systems of schools can unite and employ one competent Superintendent for the whole. The uniting of smaller towns for the purpose of superintendence is entirely practicable, and enables such towns to have the benefit of as wise supervision as the larger towns and cities have, and to have it at small expense.

There is one part of the Superintendent's work which has been somewhat neglected in the past,—that of educating public sentiment in favor of the schools; of letting the people know what he is trying to do, so as to get their support and coöperation. Public meetings should be held for the purpose of explaining methods of teaching and discipline, and for answering any questions that may be proposed. But before the community at large, the School Committee have claims in the same direction. Frequent reports should be made to them by the Superintendent of the condition and progress of the schools, and of what he is doing for their improvement. Half of the time that is now spent in committee meetings in the discussion of some trivial or personal matter may well be given to hearing from the Superintendent,—his doings, plans, and views touching any part of the school-work. Especially should they hear and heed evidence of incompetency on the part of any teacher, and his opinions regarding the remedy.

This full and explicit statement of what the duties of a School Superintendent may be is given in the hope that it will help to define those duties more clearly, and also that it will meet some of the objections against supervision. The objections to employing a Superintendent, or to continuing the office, often arise from a wrong impression of the character of the work to be done. To rightly perform his work, the Superintendent must know thoroughly the theory, the practice, and the end of teaching. He must be thoroughly in love with his profession and committed to it as a life-work. He can-

not well do the work of supervision and of anything else at the same time; but his whole thought should be given to the principles and the practice of education. Those, therefore, who are superintending schools to eke out an insufficient salary earned from some other employment, or who cannot bring to the work of supervision an undivided interest in it, should stand aside. The schools have suffered too long from poor supervision as well as from no supervision. Some Superintendents have been simply doing the errands of the School Committee, or they have spent their time in issuing bulletins of directions and examination-questions from their office, and called the work supervision. True, skilled supervision, as it exists in some places, is found to be a most valuable aid to the schools in bringing out the best results. Indeed, if every one could see the difference between the education of children where it is directed by a wise leader and what passes for education in places where there is no such leader, there would be a great uprising in favor of supervision and against the waste of the public money where there is not wise direction.

Much of the criticism that is now made of our public schools is doubtless well founded. Every intelligent test that is made demonstrates the fact that subjects are taught at the wrong time and in the wrong way. In many of the schools, original thinking is not encouraged, and the powers of observation and attention are not developed as they should be. There is not found often enough that practicalness of work which is involved in a good method of study, and which implies discipline and facility as well as the acquisition of knowledge, The remedy in part for all this lies in a thorough and intelligent supervision of the schools,—a supervision which will detect faults wherever they may be and supply the needed corrective; and there is no community in this Commonwealth that can afford to be without it,—not even the smallest town. Two or more towns can, as has been suggested, unite for the purpose of superintendence. This can be done in either of two ways. The towns can vote "to form a district for the purpose of employing a Superintendent of Schools," in accordance with Section 44, Chapter 44, of the General Statutes, or they can simply vote that the School Committee be required to appoint a Superintendent. The Committee of each town can then appoint a Superintendent for so many days' service in the week. There can be no friction between the towns under such circumstances, for the Superintendent is in the service and directly under the control of one town a given number of days in the week, and no other town has his service then. In this way each town has the benefit of the service of a skilled expert one, two, or three days

in the week, at a moderate expense. One day a week from such a man will be found to be worth far more than the full time of one who does not understand either his own work or that of the teacher.

Fear of "one man power" ought not to deter towns from securing this needed service. Nothing need be taken from the authority of the School Committee, for they will still retain, as they should, "the general charge and superintendence of the schools." Let not the excuse be made that the right man cannot be found. Once make the office as strong and secure as is that of the teacher and there will spring up many candidates worthy of trust and confidence. Neither let the fears of disturbance sometimes expressed by routine teachers prevent the appointment of a Superintendent. The best teachers hail with joy such a helper. They know that their work will be better understood and appreciated, that the plan of study will be better arranged, and that the teaching in all grades will be more thorough and methodical.

WHAT MORAL RESULTS SHOULD COMMON SCHOOL TRAINING GIVE?[1]

BY W. N. HAILMANN.

Morality in its widest and fullest sense is agreement with the laws of being. This is true of all phases and relations of life. It is true in the smallest concerns of individual existence, as much as in our relations to Supreme Being, to God. This view connects every virtue with every phase of our existence. None is so lowly as to exclude the highest of them. "Charity begins at home." So do faith and hope. Faith in God begins with faith in ourselves and in our nearest surroundings. In all directions we reach infinity only through its transient, finite manifestations; unity only through diversity; the one through the many.

Conscious morality in man implies insight into the laws of being. Without insight our morality is a lucky chance. Whatever adds to our insight, adds to our morality. A man who truly knows must be an unthinkable fool, if he is wicked, if he lives in opposition to the inevitable law. There is no greater moralizer than the diffusion of knowledge. It removes morality from the shaky and unworthy platform of fear and places it on the firm foundation of conviction.

I have been much shocked of late by a denial of this in the Report of the Committee on Moral Education to the National Council of Education, in which the diffusion of knowledge is adduced as "unfavorable to morals," on the ground that it "weakens the bonds of authority of all kinds, and replaces the terror felt for some unknown punishment by a moderate apprehension of some physical inconvenience; the moral command having lost its sanctity, and become a hygienic prescription." It is a sad and strange perversion of mind when five men high in the educational councils of the Nation deliberately turn their backs upon the light of heaven, and seek salvation in the realms of darkness. The man who knows, who *truly* knows, must grow in morality. Other circumstances being equal, he will be moral in proportion to his knowledge. For is not knowledge the very life-blood of morality. Men will rebel against fear, but never against knowledge. Possibly the committee had reference to that flippant dilly-dallying with knowledge which is quite common in machine schools, but this is not knowledge. Knowledge goes to the

[1] I take it that *training* here means *education*, and have answered the question in this sense

essence of things, and reacts necessarily and in proportion to its depth upon the very essence of our conscious being.

Strictly, there is but one virtue. This accounts for the confusion in the current definitions of virtues. Any virtue may be expressed in terms of another. Industry is faith in the value of our work; justice is faith in the immutability of law; reverence is faith in the divine essence of all things. Any virtue implies all the rest. Hope and charity are but manifestations of faith in different stages of action and re-action; charity and faith are the children of hope; faith and hope are the ripe fruits of charity. "Seek ye first the Kingdom of God, and all these things will be added unto you," will apply to any of these.

Let us name the one virtue *faith*, for this seems to hold the essence of virtue more fully than any other term. I do not mean blind faith. Blind faith is not moral. It needs the fertilizing power of insight to make it moral. Its first outcome are love and obedience. Faith in self, in mankind, in nature, in God,—true, genuine faith,—must yield love and obedience to self, mankind, nature, God, in proportion to its genuineness and intensity. Faith in self is self-reliance; and inasmuch as it implies insight, implies self-knowledge. Self-knowledge brings modesty and self-esteem, and grows into self-control, self-mastership, the unfailing fountain of the four cardinal virtues, — temperance, prudence, fortitude, justice. Mutual faith among fellow-men brings forth good-will, gratitude, sympathy, obedience to the call for help, liberality, magnanimity, self-sacrifice, mutual respect, and respect for law and order, and tempers justice with mercy. Faith in nature secures obedience to her laws, which implies attention to all the physical duties to self and society. Faith in God secures hope and self-devotion, or charity in its highest sense. It teaches the one-ness of all that is; it reveals the drift of being; it gives reverence, the attitude of morality, toward all things great and small; it shows man that salvation lies only in truth and goodness, and it clothes these in a transcendent beauty which fills him with a glorious enthusiasm and, at the same time, with perfect equanimity, perfect trust. It teaches man the nothingness of self in isolation, and the all-ness of self in perfect self-devotion. Who has this faith needs no other, for it includes all other faith.

On the other hand, it should be remembered, particularly by educators, that this great faith, like all things human, is a growth, and subject to the laws of growth. It comes from within. Its development is slow and from smallest beginnings. Patiently and laboriously it must climb from faith in self through all the intermediate

stages; and it must do this self-actively, in full spontaneity and freedom. Woe to the teacher who fails to recognize this and who forces upon the child a formal faith in God, of which the little one cannot feel the meaning and the value!

In approaching our question we should look upon every child primarily as a young human being with all the possibilities this dignity implies. All distinctions of condition, rank, circumstance, and even heredity should vanish before this one consideration; for the *human being* can work out of all of these. If we attend to this, all else will follow. A human being in the full sense of the word will be on his feet wherever you place him. Is he a laborer, he will be faithful and frugal; is he a merchant, he will be honest and fair in his dealings; is he an artisan, he will be diligent and conscientious; is he an artist, he will be pure and reverent. He will in every calling and in every condition of life find and practice the special, most needed phases of his virtue.

Much is made of this being an age of machinery, and of the consequent need of punctuality and regularity. Put the *human* being over a machine, he will be punctual and regular. Beware, however, in his education of making him a part of the machine, instead of placing him over it as its conscious master. Beware of the *ad hoc* in education, unless, indeed, this *ad hoc* is humanity in its fullest and highest sense. A god can run even a machine; but the machines which we sometimes make in school factories are hopelessly removed by our work from becoming "perfect even as your Father in Heaven is perfect."

The question, what moral results should common school training give? we may therefore answer boldly. It should give the highest attainable result in humanity. It should make the pupil virtuous. It should give him faith, hope, charity, justice, love. It should place him into full agreement, full harmony with the laws of being. Nothing less than this will do. It should give the pupil insight, knowledge of self and surroundings. It should bring will and deed, the pupil's life into agreement with this insight. It should enable him to feel and enjoy the higher pleasures of eye and ear, — higher as compared with those of mere contact in touch and taste. It should lead him to rise from indulgence in the merely pleasurable to an appreciation of the beautiful, — from the grosser pleasures of matter to the pure enjoyment of form. It should raise him from the world of *real sensations* to the brighter realms of *ideal affections*. It should arouse enthusiasm, and, at the same time, strengthen equanimity, placing the emotions under the control of reason. It should give

him moral principles and self-control, justice and benevolence, a true appreciation of the relative value of external and internal possessions, of the real and ideal.

This is the result common school training ought to give. We should be satisfied with nothing less. The common schools are the schools of the people, which in the democratic republic is sovereign. The general welfare demands that this sovereign should attain the highest attainable degree of virtue. A number of persons, consciously or unconsciously hostile to free institutions, take advantage of the double meaning of both *common* and *people*, and prate more or less vociferously about the wrong of taxing wealth for the support of "schools in which the *common people are* educated above their station." In the ideal democratic republic there *is* no *common people* in the sense in which these persons use the terms. Here the *common people* cannot be educated above its station; for *it* is sovereign. The private school or academy may place its highest aim in the pseudo-culture of decaying social groups; the technical school may confine itself to preparation for the specific needs of some particular calling; the church school may be satisfied with the narrow morality of some transient form of worship; the charitable industrial school or orphan asylum school may be proud of the surface morality it forces or coaxes upon fore-ordained menials; but the common school which is to prepare the sovereign of our land for his arduous duties, the common school upon whose labors depend the common welfare and the perpetuity of our free institutions, can be satisfied with nothing less than true, full, all-sided culture of head, heart, and hand, the broadest and deepest morality, the most profound and most intensely living faith, the highest and most generous humanity.

The answer to another question that was put to me, viz., "What moral results have been attained in common school training?" I find beyond my power. It is easy to see that in a general way much has been attained. This appears unmistakably in the tone and character of the work and in the steady upward drift of American civilization. It would be difficult, however, to show in particulars to what extent the school as such is chargeable with the successes or failures of the past century. This would require the collection of a vast amount of statistical material and extensive historical and other sociological studies, which it is impossible for me to undertake. On the other hand it is a less onerous and, perhaps, more useful enterprise to point out a few of the chief dangers and desiderata of the ethical work of the school.

The greatest danger to the educator lies in the power of fear in

the external control of the weak. He is constantly tempted to wield this convenient expedient in securing external good conduct on the part of the comparatively weak young human beings under his care. He is constantly ready to use the threat of arbitrary punishment in tone of voice, look, gesture, or word. The pupil soon learns to connect the need of good conduct with safety from inconvenience under certain external circumstances, such as the presence of the master. He puts on external good conduct as a mantle whenever occasion requires and hangs it on a peg in the hall whenever he enters the sanctuary of his inner being, or when the outlook is clear. He becomes a cunning slave floundering along an uncertain surface of public opinion, but fails to grow into the inner rectitude of the freeman who soars steadily and consciously upward on the pinions of faith. Circumstances may arise and cases may occur when the educator stands helpless. Immediate action on his part is imperative, and he sees nothing at hand but the external exercise of his superior power, nothing but fear. If he then uses it modestly and prayerfully, it is well. If he says to himself, I have recourse to this because of my ignorance and lack of skill; if his inmost self cries aloud, "Oh that I might be spared this humiliation," it is well. His prayer will be answered, and his humiliation will bring him more light. But woe to him, if he exercise his authority in pride and self-approval. He will bring misery upon his pupils, and defeat upon himself.

The motive is everything. Faith is virtue, fear is vice. Faith is life, fear is death. Faith is development, fear is repression. Faith is of God, fear is of the devil. Faith cries *Do*, fear whispers *Don't*. A school discipline that is based on faith, — faith in self, in the schoolmates, in the teacher; faith in the world, faith in God,— is for all time, and will lead youth into virtuous manhood and womanhood. A school discipline that is based on fear is for the moment, is an expedient, and will leave youth to drift or linger, as passion or circumstance may chance. We hear much of obedience as the cornerstone of morality, but it makes all the difference of good and evil *what* the child obeys. If it obeys the power of despotism, yielding all the time to external pressure, it will sink into slavery, and in due time its own whims and passions, and the temptations of surroundings will become its despots. If it obeys the force of reason and goodwill, yielding more and more to its own growing insight, it will grow into freedom, into full mastership of self and the world. We hear much of the fundamental need of rigid discipline, but it is all-important that in this the stress should be laid on the discipline and not on the rigor.

It is said in the Report of the Committee on Moral Education to which I have already referred, that the pillars on which school-education rests are *behavior* and *scholarship*. It is necessary, however, that these pillars should themselves rest on a firm foundation in the very self of the pupil, else the whole structure will tumble down, pillars and all. This foundation can be no other than virtue, morality based on insight. I can see no reason why *school*-education should be less intensely moral and ethically shallower than family education; or why the school should be satisfied with external good behavior and superficial scholarship, instead of insisting on character and intelligent, self-active love of knowledge.

The same report tells us that in securing behavior and scholarship, "habit is everything, and theory little or nothing." It would have been better to say that habit is invaluable. It is unwise to raise the appreciation of habit by lowering the appreciation of theory or instruction. Instruction is as invaluable as habit. Instruction renders the blind strength of habit seeing. Instruction kindles beacon-lights on the shores to keep habit off the reefs of unreason. It generalizes habit. It adds faith to habit, and raises it from the level of mere expediency to the dignity of virtue. Habit may make a pupil punctual, regular, obedient under certain conditions; instruction will make these qualities the necessary accidents of a thoroughgoing morality.

I do not wish to warn, however, against an over-estimate of habit. but rather against the under-estimate and neglect of instruction. For habit is, indeed, invaluable; and the formation of good habits is the constant aim of all true education. Strictly speaking, habit is the result of instruction and practice; it is conduct become automatic.

In its broadest sense, instruction embraces the character of surroundings, the example and the word of the educator. The arrangement and management of room and furniture, the character and use of text-books, the recitations, rules and regulations, the dress and manner of the teacher, all belong to instruction; so does the teacher's example in ethical conduct. Indeed, the value of these phases of instruction is quite generally recognized. On the other hand, this is not the case with instruction by speech. Concerning this it has become almost fashionable to deride all verbal ethical instruction as worse than useless moralizing; and yet there is no greater illuminator of the way in which we should go than the Word. I am well aware that "it is not the hearers of a law who are righteous before God, but the doers of a law will be accounted righteous."

Yet it is needful that those who are not "a law unto themselves" should be hearers before they can be doers of the law.

It were strange, indeed, if the recital of beautiful stories, adapted to the learner's scope, and freighted with the example, praise, and leadership of virtue, should fail to incline him to virtue's ways; strange, indeed, if the repetition of beautiful thoughts and sentiments fresh from the hearts of the best of men, should fail to attune his heart to goodness; strange, indeed, if the earnest admonitions of a respected and beloved instructor, whose very tone of voice comes laden with faith in the learner's fundamental integrity, should fail to strengthen him in good purpose and earnest endeavor; strange, even, if a systematic presentation of duties to self, neighbor, and God, should fail to increase his fidelity to duty.

I have a firm conviction that much of the moral shallowness that seems to fill society with crime, to clog our government with corruption, and to oppress our commercial and industrial interests with a narrow, grasping egotism, is due to this unwise neglect of ethical instruction in our schools. It is due in a large measure to that cold, speculative intellectuality that looks upon each child as merely another grain to be put through the mill, as merely another *one* that has come to figure for a time in "number belonging," "average attendance," "percentage of transfer," and the like. It is due to that cold, speculative intellectuality that sacrifices all things to subjects of instruction, and judges all comers by the low standard of "behavior and scholarship."

We need, to counteract this, a revival of the heart, warmth of feeling, sympathy with each individual pupil, a deep concern in his ultimate welfare. We need teachers whose touch and look, whose voice and word bring to each pupil rich assurance of genuine, abiding interest in his well-being; whose very presence says to the child constantly, "I see and respect in you untold possibilities for good, and I love you for the good I know to be in you. This I shall find and foster with tender care, and help you grow to be the strong, self-contained, helpful man or woman, the king or queen you are meant to be." We need teachers who find it in their heads and hearts to say to their children in all the phases of their intercourse with them, "Never mind your faults now; come, let us attend to the good in you, and the faults will vanish like a dream." And we need superintendents who can appreciate such teachers, and who find it in their heads and hearts to allow them to do their God-appointed work.

I can see no reason why school-education should be less intensely

moral than family education, and why the formation of character should be any less the proudest outcome of the school's work. On the other hand, I can see hosts of reasons why the school should be more stringent, more persistent, and more systematic than the family in this respect, in order to make up for the manifold inabilities of the family, coming from poverty, ignorance, and frivolity in the home. I know of no weaker and more humiliating attitude than that assumed concerning this question by a number of school-men claiming that we have no concern with these things; that such matters, as they term them with not a little contempt, belong to the family and church. They may close their eyes as vigorously as they choose to this greatest of their responsibilities; God will not relieve them of it.

It is not within the province of this article to find ways and means for the accomplishment of the indicated results. Yet experience and a thoughtful review of the field convince me that ways and means are ample. To begin with, let the atmosphere of the room in its neatness, cleanliness, and cheerfulness, in the simplicity and harmony of its adornments, in its perfect adaptations to the duties of the hour, be a constant expression of ethical tendency; let the teacher, in dress, manner, movements, bearing, and speech be a living example of self-reliance and good-will, of justice and love, of the sweetness and serenity that stream as a perpetual halo from all-sided faith. Let her avoid in look and speech all that borders on pride and a vain display of superiority; let her shun sarcasm and irony, bitter and cutting reproof, scornful and vindictive accusation, and all similar manifestations of incompetence and hate; and let her, on the other hand, be ever ready with encouragement and help for the better self that struggles for recognition and supremacy in the being of every child. Let her miss no opportunity in general and particular directions for conduct, and, in all so-called disciplinary affairs, to direct the child's attention to underlying principles of duty. Let her in teaching hold fast every opportunity to glorify virtue.

Undoubtedly, one of the most powerful special helps in ethical instruction is the morning exercise. Here the child may learn to study virtue systematically, and to love it consciously. Here its whole being may be attuned ethically for the day's work. I would warn, however, against the demoralizing practice of the perfunctory "reading of Scripture *without comment*." I see no good reason why suitable passages of Scripture, heavy with treasures of ethical truth, should not be unlocked in explanation and illustration. It will always be found easy to avoid the shoals of sectarian controversy which rests

upon dogmatic considerations that have little to do with the ethical bearings of scriptural truth.

However, the recognition of the value of ethical training in our schools would necessitate important changes in their entire organization. First of all, the ethical condition of the teacher is of the highest importance. It makes all the difference of success and failure ethically whether a teacher do her work with the warmth and enthusiasm of inner conviction, on the basis of immanent life-principles, or with the spiritless stolidity of a menial who earns a living by doing chores. Now, he is tested for fitness almost wholly on the basis of a shallow school-scholarship, to which are sometimes added superficial testimonials of good reputation and the connection with some church, neither of which is necessarily a proof of good character. Instead of this, or rather in addition to this, it would become necessary to institute searching inquiries into the nature of his life-principles. With their attention habitually directed to these things, wise men and women would not find it very difficult to arrive at safe conclusions, inasmuch as life-principles are written in clear and indelible characters in the bearing, the expression, the walk and talk, — all the little *minutiæ* of daily life. A day, or even an hour in school,—a test lesson, as the Germans have it,—when the teacher can be observed in actual intercourse with the pupils, will be more efficient in revealing the teacher's fitness, even with reference to scholarship, than the most searching written examination.

In the next place, our courses of study, as well as our methods of instruction need remodeling. They should be handled throughout with a view to the cultivation of self-reliance,—that faith in self which is at the very root of individual morality. They should offer to the learner opportunities, not for study alone, but for the application or use, for the control or mastership of the things learned. This makes it necessary to adapt the course of study more to the requirements of the pupil than to those of the subject of instruction. Now we are in the habit of dishing out to the child certain portions of subjects, and to make him turn them over and swallow them in a given time, not caring for his appetite nor for their ultimate fate. Instead of this we shall have to give him the whole subjects, and let him test his powers upon them in all directions, and use them for purposes which he can appreciate.

Thus, in Arithmetic, we are apt to give the child a certain fragment of the subject, say addition, and to drill him on this so that, as we say, he may understand it thoroughly. The work is, intrinsically, without interest to him, and he goes through with it only inasmuch

as he is driven or coaxed. Instead of this, we must learn to give the child the whole subject, and help him test his powers upon it in all directions, permitting him to handle the numbers he can grasp in all needed ways, in division, part-taking, and multiplication, in subtraction and addition, and connecting these things with the learner's own life, constantly making them useful to him in his daily work, — or daily play, which in earlier years is his daily work.

Such work will secure for the child a more or less vivid sense of power, without which genuine interest on his part is impossible. Whenever the child has this sense of power, of mastership, he grows and feels the joy of growth. Hence the chief business of the school, particularly in the earlier stages of its work, is to see to it that this growth be properly sustained in the right directions. The traditional dislike of children for the school is chargeable to the neglect of this duty. Everything in the school is so new and strange to the children; nothing sympathizes with their own hopes and aspirations; nothing fits their purposes. They feel helpless and weak; and, even after they have learned to submit to a duty, which they neither understand nor appreciate, and have begun to make its fulfillment a temporary purpose of their own, they are always glad when the time comes to go forth from these to purposes that lie nearer their wants and needs, and, consequently, nearer their hearts. There is no better proof for this than a true kindergarten, — not a schoolish affair in which they substitute certain games and manual occupations for the three R's, nor a sentimentality-shop where all strong things except self-conceit are whined and fondled out of the children, — but a genuine kindergarten that has caught the spirit of its founder. Here the child finds new things daily, it is true, but they adapt themselves readily to his wants and purposes, and invite his control. Here he finds new friends, too, but all,—especially the kindergartner,—sympathize perfectly with his hopes and aspirations, and strive to increase his happiness by increasing his mastership. It is a significant fact, too, that although not engaged with any special subjects of instruction, the children learn much,—nay, much more than older children were wont to learn in primary schools,—of number, form, drawing, singing, rudimentary natural history in its wider sense, geography, language, and, in many cases, even of reading and writing. A still more significant fact for the question under consideration is that the children visibly gain in virtue; that their faith in self, in playmates, in teachers, in mankind, in nature, is making steady strides toward an enlightened faith in God.

Unquestionably the social features of the kindergarten help much

in bringing about these delightful results. The isolation of the pupils, which is deemed so essential in the schools of the day, proves an insurmountable barrier to the evolution of higher forms of faith. The child is persistently held back at the stage of self-faith which, clipped by the relentless school-shears at every bud that would stretch out into the balmy atmosphere of altruism, degenerates into some more or less barren form of egotism, for which humanity and godliness are equally unattainable. Fortunately the family and society provide means by which this demoralizing tendency of isolation is somewhat counteracted, and which open, to some extent, the avenues of brotherly love. There is no question that, in much of its work, the school needs more or less complete isolation of the pupils; but this isolation should be sanctified in the pupil's mind by higher social aims, for whose sake he submits consciously and cheerfully to the isolation. There should be constant opportunities for the exercise of mutual sympathy, of devotion to common interests, of self-denial, of self-sacrifice, of brotherly love in all its manifold manifestations; for these alone can lead to the high ideals and aspirations that center in the name of God.

It is not an uncommon thing among teachers to point with pride to our schools as the hope of our country, and there is certainly no other feature of public life which in its possibilities can approximate the claims of the schools to this proud distinction. Yet, if we look at the comparatively small effect which the rapid growth of the schools during the last decades has had upon the moral status of the people, it behooves us as teachers, conscientiously and modestly, to determine to what extent our work is responsible for this deficiency, to what extent the status of our work justifies our hope. Whatever may be the beneficial effects of literary and other studies upon the development of character, in their present form they seem to be inadequate to counteract the evil effects of other factors, or of the failure to make character-culture the center of the common-school work. In the selection of teachers, in the arrangement of courses of study, in determining upon methods of instruction, in all matters that pertain to the work of the school, the chief questions will have to be, "What is the ethical bearing?" "To what extent will they help in the formation of character, in the establishment of virtue?" Not before this shall be done can we look upon our schools as the embodiment of that education which is the hope of our country, as it is of all humanity. If our schools cannot check the revelries of crime and corruption that disgrace our institutions, our pride is a vain boast.

It will not do for the school to hide itself behind other educational

factors, and to cry out, "I do my duty; *they* are to blame." The prophet, filled with the spirit of his divine mission, not heeding his weakness, his personal insignificance, goes forth into the land to lead countless numbers of his brethren,—nay, all mankind, to the Father.

He does not say, "There are others whose duty is to prophecy, let them take their share of the burden"; but he meekly, cheerfully carries it all. Thus the school must arouse itself to a consciousness of its divine mission, and, with a single eye to the duties of this mission, must go forth and enlist all other educational factors in its holy work. Holding aloft the banner of faith, it must, by the might of its enthusiasm, compel the following of all who come within its influence. Then, indeed, will the school be not only the *hope*, but the *salvation* of our country, of mankind.

CO-EDUCATION.

BY H. S. TARBELL.

Whether women are the mental equals of men, whether their minds are the same as those of men, seem to be unnecessary questions in deciding to what education they are entitled, or whether they should be educated by the same teachers and by the pursuit of the same studies.

Is the work which men do in gaining an education, as good work for the mental development of women as can be devised? — can they undertake it under the same conditions that men do, with good prospects of advantage?—seem to be more suitable points for consideration when deciding for or against co-education.

In man or woman brain-power results from physical and mental culture. Study gives tone to brain, and thereby power to frame. The laws of mental growth and brain action are the same for both sexes. The object of education, — strength and facility of mental action,—is the same for both sexes. It was once fashionable among would-be philosophers to draw out in extended lists the mental differences between the sexes, to claim that woman is more observing than man. In her the presentative and representative powers are more active, while the reflective are less prominent. Her mental processes are more rapid and more intuitive. She has greater fondness for detail, more patience than men; but less power to reason, less solidity of judgment; more taste, more feeling, more vivacity, more sentiment; less leadership and power of control, less plan and logic.

Though these differences be conceded to exist in good degree, yet it will be found that the mental differences of men and women are quite as much the result of their manner of life, and especially of their education, as of any necessary and inherent differences of mental constitutions. The more one has studied the minds of women in their action, under the same circumstances of training as men have enjoyed, the more masculine have appeared their minds, or rather the more human appear all mental powers and actions. If there be any inherent mental differences between the sexes which it is desirable to retain, it is making an easy matter of a very profound change if the pursuit of studies in common shall eradicate this difference.

If the difference be so slight or so precarious that a few years of school-life can efface it, it is too slight to govern the character of that school-life.

There may be important mental differences lying in the region of the sensibilities, but the intellect and the will are sexless. The intellectual differences between men whom we see no difficulty in subjecting to the same mental training, are greater than the average differences between men and women. Boston University, Harvard in its "Annex," Cornell, Michigan University, and the one hundred and fifty other colleges which receive women to their courses on the same terms as men, do not recognize any intellectual sexhood requiring special adaptation of work or studies.

Schools for general culture are designed for the development of the individual to secure mental growth and power, facility and justness of mental action. We find in the intellectual capabilities necessary to enable either sex to gain the advantages of such schools no differences. Such specialties as divide our professional schools from the schools for general culture will be found fit or unfit for the training of the feminine mind, according to the uses to which, in a business or professional way, that mind is to be put, just as would be the case were a masculine mind considered. The whole field of literary and scientific culture lies equally open to either. With equal intellectual power, an equal right to the highest training of these powers is freely conceded.

Our social and educational customs, until within a decade of years, have implied variation between men and women in mentality and woman's inferiority. What, now, to the woman conscious of her powers and ambitious to test them, is fair play but admission to the best chances allowed to men? The schools for the education of girls only are not supposed to be, as a rule, equal in thoroughness to those to which boys are admitted, and equal education in a wide sense can only mean co-education. Whether the education given in our colleges be the best for men or for women that can be devised is not important in this connection, but if it seems equally attainable by either, and as well adapted to nourish the feminine intellect as the masculine, why should not the women eat at these tables?

Co-education is at present a necessity for those young ladies who desire to be accredited with thorough scholarship. A diploma from Michigan University is of much more value to a young lady than one from any of the colleges for women. Without doubt unjustly, but in unfortunate fact, the character of the education obtained in female seminaries will for years to come throw a suspicion of shallowness

over the reputation of all scholars who can bring no other evidences of scholarship than the diplomas of similar institutions. The desire to know our relative position, to become rated as a definite quantity, to have the stamp of the mint placed upon our intellectual gold-dust, lies at the root of much toil for collegiate degrees, and supports us through many wearisome examinations. It is this feeling, in part, which supports the Chautauqua courses and the collegiate examinations for women in this country, and still more largely in England.

A full test can be made only by co-education. In my acquaintance with young ladies I have not of late years met (not saying this is true in all cases) one ambitious, capable lady who was willing to take a course in a female college. I know many of them have taken Greek and the higher mathematics just to show that they could compete with the young men in these supposed very difficult studies. These examinations have established beyond controversy the ability and readiness of women to compete with men in any line of scholastic effort. If there be any intellectual inferiority in women, it must be sought elsewhere than in the class-room or the examination-hall.

A young lady educated by herself, or in a girl's school, has no just standard of self-measurement. She meets young men who praise her scholarship and beauty, pay a condescending homage to her intellect, and delight in her vivacious repartees. She sees that others look upon her as nothing in herself but an interesting companion for a leisure hour, and listen with a pleased astonishment to her profound remarks as one regards the wise saying of a forward child. Co-education affords the desired standard, and gives her just such place. That a woman has a more slender physique than a man, and would be less able than he to do the work of the forge or the farm, by no means proves that she can do less than he in the school-room or in any of the varied ranges of mental activity.

The opponents of co-education claim that either the health of the young ladies must be broken down by the unremitting toil of a college course, or the standard of college education lowered to her feebler capacity. Were this true, then further discussion would be useless. Woman would be irrevocably condemned to an intellectual inferiority corresponding to her physical stature. But the facts of many years do not seem to corroborate this. Those who have watched her work for a series of years side, by side with young men, almost invariably say that she has maintained an equal scholastic rank, and usually with as little interruption from ill-health and with an increasing physical strength.

Nature has made provision for the girl to do more work during the

first twenty years of her life than the boy, because during the next twenty she will not have the same opportunity for personal improvement. But the objections to co-education are not only "because of the special strain which continous college studies are supposed to lay on the delicate physique of woman, but also because of the special dangers to female modesty and reserve supposed to arise from the continuous association of men-students and women-students in the same class-room."

Where the college does not attempt to control the study-hours or the conduct of pupils outside the college class-rooms, but they are remanded to the care of parents and friends and to the control of society, the influences can hardly be injurious. Young men and young women are better morally, socially, intellectually, for association in the school-room. When the inspiration of study possesses the student, he or she is not likely to be harassed by the presence of the other sex. A common interest leads to intelligent association on an intellectual plane. This tension of sex, which is certainly to be avoided, is quite as likely to exist in unwelcome forms in the separate school.

A lady, who, after studying several years in schools for both sexes in this country, went to France for further study, writes of the girls' schools in that country:

"Occasional visits from friends or a surreptitiously read novel give them an idea of the outer world, and imagination fills up the gaps. These girls in the schools become dreamers. They dream of life and its duties and privileges, and their dreams are morbid and unreal as those from fever." "Co-education is looked upon with horror by parents, and a mingling of curiosity and astonishment by the school-girls. The announcement that I had gone to school with boys all my life created immense excitement behind the high walls of my French boarding-school. At first I was looked upon with something the same feeling as that aroused by Dr. Mary Walker in her masculine attire in the streets of New York. I was the theme of the hour, and was shunned as a social outcast for a whole day. Curiosity finally got the best of my schoolmates. They crowded around me, and plied me with questions. If I chanced to say I thought education with boys was the best and most sensible way, there was the greatest merriment. My favorite teacher, a woman twenty-five years of age, asked me, with a book over her face and crimson to the temples, if I did not find it very difficult to study under such circumstances, adding, with a nervous laugh, that she just knew she could not study, for she would be looking at the boys all the time. It is with such morbid and unhealthy views of human life and its relations that the French girl is still educated."

It is in Catholic countries, where celibacy is a condition of the priesthood and the educational institutions are managed chiefly by brotherhoods and sisterhoods, that separate schools for the sexes most exclusively prevail. But the spirit of the age seems to be reaching these lands. The Minister of Education in the Argentine Republic has recently decreed that all schools hereafter established shall be for both sexes, and those now established shall become such as fast as circumstances will permit.

The great social element is that of sex. The respect either sex has for the other is the measure of its purity. Those who meet in the class-room in the study of great subjects are elevated by the circumstances in which they meet to a higher plane of intercourse. The mental differences of the sexes are reasons for co-education. One studies to obtain some good quality which he has not. Both sexes are benefited by taking on the qualities of the other. The boys, the gentleness, carefulness, kindness, and patience of the girls; the girls, the energy, the courage, the broad generalizations, the logical judgment, the wider views that characterize the boys.

As Mr. Buckle eloquently says in an article in *Fraser's Magazine*, April, 1858:

"The habits of thought peculiar to one sex act upon and improve the habits of thought peculiar to the other sex. Unconsciously, and from a very early period, there is established an intimate and endearing connection between the deductive mind of the mother and the inductive mind of the son. The understanding of the boy, softened and yet elevated by the imagination of his mother, is saved from that degeneracy to which the mere understanding always inclines; and the different properties and functions of the mind are more harmoniously developed than would otherwise be practicable. Thus it is that, by the mere play of the affections, the finished man is ripened and completed. Thus it is that the most touching and most sacred form of human love, the purest, the highest, and the holiest compact of which our human nature is capable, becomes an engine for the advancement of knowledge and the discovery of truth. In after-life, other relations often arise by which the same process is continued. And, notwithstanding a few exceptions, we do undoubtedly find that the most truly eminent men have had not only their affections, but also their intellect greatly influenced by women. Therefore it is that those who are most anxious that the boundaries of knowledge should be enlarged, ought to be most eager that the influence of women should be increased, in order that every resource of the human mind may be at once and quickly brought into play."

As an education to a trade or a profession, before a good general basis has been provided, narrows as it specializes, so education of

men as men and women as women by women among women, if it comes before the broad recognition of humanity, narrows the mental life and weakens its vigor. Girls educated in schools for their own sex exclusively will usually be found to lack solid, thorough training in what are called thought-studies,—mathematics, classics, logic, and mental science. At the same time it is probable they will have acquired superficial habits in the study of the lighter branches. They will lack both accuracy and depth.

Co-education gives young ladies a wider and truer view of life than would their separate schools. Young men are in training for a diversity of pursuits. The whole future state is represented potentially in a boy's school. Girls are educated for a common career. All are being trained to shine in society, to win the admiration of men, to manage a house and instruct their children, if indeed their thoughts reach so far. Through the church they reach the great idea of modern growth, the value of the individual, but otherwise find only a relative or reflected importance.

Our general education is largely for the sake of the home. To render this prosperous and happy is a great end of culture. This is best secured through the mutual respect, confidence, and aid of its members. The best men and best women, knowing each other best, respecting each other most, make the best homes. An affection, which is the ripening of a pure friendship, and is supported by a mutual confidence and respect born of generous competition and thorough acquaintance, would seem the best foundation for a happy, prosperous home.

In view of the demand now made for leadership by the advocates of woman's progress to equality of rights, duties, and opportunities with men, it seems of special importance that our young ladies should secure mental breadth, the candor and far-sightedness which a broad and liberal education can afford. They will best appreciate the advantages of this equality, and the difficulties and losses in securing it, if by years of daily test they measure their intellectual powers with those young men who are likewise to be the leaders of social, business, and political movements in their generation. The occupations of home are likely to be of a varied and, in a considerable degree, of a trivial nature. Therefore, the mind of the young woman should be trained to find in solitude an opportunity for lofty thought, and in the busy idleness of trivial occupation an informing purpose and harmony of plan that puts the beauty of thought into the variety of common-place duties.

The presence of women throws a refining influence around men,

improving their manners and giving an ideal element to their thought. A higher standard of purity and gentleness lifts them toward itself. There is a quickening influence on the minds of young men from association with the magnetic, imaginative minds of young ladies. Firing the intellect through the kindling sensibilities is the best way to find its heat and power. This gives spontaneity and the brilliancy we call genius. The combined vision of the two senses gives a binocular insight that far surpasses the one-eyed vision of either. But while we may, according to our predilections and surroundings, argue for or against the co-education of the sexes, it will be the results of experience which will mold the public thought.

President Seelye of Smith's College writes to Prof. John Tetlow:

"It is a common experience that young ladies are greatly improved by the regularity of life and the freedom from undue mental excitement. I am now entirely convinced that women can pursue a course of liberal education not only without physical injury, but with increasing health and strength."

President Angell of Michigan University says:

"Women have been received here as students since 1870. We usually have from 180 to 200 in the various departments of the University. The result of our observation and experience thus far is this: If women are in good health when they come here, and take reasonably good care of themselves while here; if they do not attempt, while pursuing their studies, to go too much into society, their health does not suffer. On the contrary, the regularity and pleasant activity of student-life seem to be conducive to health. Not a few of the young women who were not very strong when they came here graduated in firm health. I know of no facts to indicate that in subsequent life the women who have studied here have suffered from the ill effects of their work in the University."

I copy from a letter by President White of Cornell to some unknown correspondent:

"As to your first question, we think the chances for good health are decidedly in favor of young ladies taking an advanced course of study, especially when, as is here the case, great pains are taken to have them realize the importance of maintaining a thoroughly good physical condition, and of learning the best ways of preserving it. I have long been persuaded that much of the ill-health of women in America arises from *aimlessness*, which, under a better system of education, would be done away with. . . .

"As to your second question, so far as I can learn, the lady graduates of this institution compare very favorably with the rest of womankind as regards health. . . . The question has sometimes been asked whether young women can keep up with young men without too great sacrifice of health?

To that I may answer, that the statistics preserved by our Faculty Committee on Excuses for Absences show that, while seventy per cent. of the young men asked for excuses last year, only 38 per cent. of the young women applied, which would seem to indicate that the young women will find no trouble in putting as much time into study as the young men. . . .

"To sum up: I think that if reasonable care is taken, young women can pursue advanced studies as safely as men, and that the increased thoughtfulness thus given is likely to prove a safeguard in the preservation of health as in other things.

"Very respectfully yours,

"ANDREW D. WHITE."

When the experiment of co-education was first extensively tried in this country, the first point gained by the ladies was the gallant concession of their equal capacity with men for the tasks of the student, coupled with the regret that their physical endurance was so much less.- Of late confidence in this also is finding lodgment in the public mind, and we now have abundant testimony to the hygienic advantages of regular study for women; but the fear now is that the truly feminine characteristics of her mind may receive some harm from the development of the qualities more truly masculine. Yet our deepest thinkers have long ago announced "there is no sex in mind," and as educated women show their ability to adorn social and domestic life, we may expect this barrier to co-education to disappear also.

The growth of American sentiment in favor of co-education is one of the marvels of this generation. Separate schools for girls and boys are usual in the larger cities of the Eastern States, while in the West co-education is the nearly universal rule. In 1867 there were 22 colleges in the United States, giving instruction to both sexes; in 1873, 97; and in 1880, 154.

The questions, What variation from the usual courses for men shall be made for feminine needs and characteristics? and Shall women obtain this education in separate or mixed schools? are the only important ones in this connection; and to me it seems the answer will finally be that to woman, as to man, will be left a large discretion as to the course desired; that for general growth and culture of mental power, like measures for each will be employed; that for the same special labors, like preparations will be made; that only when a woman's purposes and powers are known, can she be well advised as to the course of study to be followed, and, these being known, wisdom will consider these elements, and not the sex of the student, when the advice is given.

NORMAL SCHOOLS.

REPORT OF COMMITTEE TO THE NATIONAL COUNCIL OF EDUCATION

The subject assigned to the Committee on Normal Schools is, "Academic and Professional Instruction in Normal Schools." In the consideration of this subject the Committee have endeavored to answer the following questions:

I. What is Academic Instruction?

II. What is Professional Instruction?

III. What amount of academic knowledge should be required of candidates for admission to Normal Schools?

IV. Is it desirable and practicable to establish a uniform standard of admission to Normal Schools?

V. To what extent should the time of the Normal School be devoted to obtaining a knowledge of subjects, as compared with the time given to the consideration of the principles and methods of teaching those subjects?

VI. On what principles should professional instruction in Normal Schools be based?

A full discussion of these questions would occupy much more space than can properly be assigned to this report. The most that can be done is to state briefly the opinions of the Committee.

QUESTION I. *What is Academic Instruction?*

The term is thus defined by members of the Committee:

1. It is that instruction the object of which is the communication of knowledge merely, with the resulting intellectual discipline.

2. It is that instruction whose object is to impart a knowledge of the different branches of study. It embraces instruction in the arts and sciences.

3. It is that knowledge which is of equal value in all callings.

4. It is that kind of teaching which is designed to aid the student in the general development of his faculties, in the formation of his character, and in the acquisition of a knowledge of the several branches of literature and science. It seeks, or should seek, to give him the best possible command of all his powers, physical, intellectual, and moral. It is that instruction which should precede the preparation for all special callings and pursuits.

It will be seen that the last of these definitions includes all the

others and something more. In addition to intellectual training, it justly embraces moral and physical culture, as an important part of the work of all schools that precede the professional school.

QUESTION II. *What is Professional Instruction?*

1. It is instruction in the history, the principles, and the methods of education, as branches of study pursued by themselves, or in connection with the academic instruction in the various branches of study as illustrated by or inferred from these.

2. It is that which has special reference to the methods of teaching the different arts and sciences. It embraces at least three things: (1) A knowledge of the method of developing and training the different powers of man; (2) a knowledge of the methods of teaching the different branches of knowledge; (3) a knowledge of the methods of organizing and managing a school. It includes instruction in the principles and various methods, and, also, in the practice of them; that is, in both the science and art of teaching. Besides these three departments, which are essential, there may be a course in the history of education, the school-laws of the pupil's State, and the school-laws of other States.

3. Professional instruction is that kind of teaching whose office is to aid in the preparation of the student for his special sphere, calling, or profession in life. In normal schools it implies that body of educational knowledge, doctrine, and principles which the study and experience of the past have accumulated and formulated. Superadded to the studies, lectures, etc., essential to impart this knowledge, there must be the training and practice necessary to test the aptitude of the teacher, and develop skill in the practical work of the school-room.

4. Professional instruction includes two species of work: (1) Pedagogics, — a knowledge of the mental, physical, and moral constitution of the child, principles of education, principles of instruction, practice in teaching, and history of education; (2) a more extensive knowledge of the subjects in which the teacher is to impart instruction.

QUESTION III. *What amount of academic knowledge should be required of candidates for admission?*

QUESTION IV. *Is it desirable and practicable to establish a uniform standard of admission to Normal Schools?*

These two questions are so closely related that they may be considered as one.

The Committee agree in the opinion that no fixed rule can be laid down in regard to the amount of academic knowledge to be demanded

of candidates for admission to normal schools. The conditions of education in different States, and, in some cases, in different parts of the same State, are widely diverse. In some States free schools have been long in existence, and all the children have had an opportgnity to obtain a fair education ; in others, free schools are of comparatively recent origin, and general education is relatively poor. In some States free high-schools exist in large numbers, and are accessible to all, or nearly all, the children ; whereas, in others, but few, if any, such schools have been established, and the children generally obtain no school education beyond that afforded by the common school.

The normal school must use the best material it can obtain. In a highly educated community it can fix a high standard of admission ; in one poorly educated it must adapt its demands to the prevailing condition of education. To raise the common school to a higher plane, the normal school must keep within reaching distance, always with the steady purpose of advancing its requirements as rapidly as it can improve the condition of the common schools.

The minimum of requirements for admission should be such a knowledge of the usual common school branches as can be generally obtained in the schools of the State, or the part of the State, for whose benefit the normal school has been established. Where only common schools exist, a knowledge of only the common studies should be demanded ; but in communities where high schools abound a much higher demand may justly be made.

QUESTION V. *To what extent should the time of the Normal School be devoted to obtaining a knowledge of the subjects taught, as compared with the time given to the consideration of the principles and methods of teaching those subjects ?*

The answer to this question cannot be the same for all normal schools. The standards of admission have an important bearing upon the amount of strictly professional work that can be done ; and, as the standards necessarily vary, so must the amount of professional study vary. Each school must use to the highest possible advantage the conditions in which it is placed.

The teacher must know that which he is to teach, and if he is deficient in essential knowledge, professional study must, in a measure, give way to academic. Yet, even in the study of subjects that may be deemed to belong to academic work, the attention of pupils should from first to last be called to the methods by which the subjects are taught and to the principles on which those methods are based. Thus, from the outset, professional instruction is intermingled with

the acquisition of a knowledge of subjects, and the professional element is made to enter into all the work of the normal school.

But in addition to this there must be a large amount of purely professional study,—a study of the human mind in its various modes of action, and of the laws which govern it; a study of psychological principles as applicable to methods of teaching; a study of school-organization and school-management; and a study of the origin and growth of systems of education.

Wherever circumstances permit, the normal course should include one year, at least, of the study of pedagogics, pure and simple. As the condition of education in a community improves, the standard for admission to the normal school should be continually raised, and more and more of purely professional work should be done, until the school becomes in name and in fact, and in the broadest sense of the term, a professional school.

QUESTION VI. *On what principles should professional instruction be based?*

An easy answer is: On the nature of man as a spiritual and physical being. We need as a basis for all teaching, and for all teaching how to teach, a much more definite and accurate knowledge than we now possess of mental, moral, and physical growth; of the way a child becomes a man. To the acquisition and extension of such knowledge, by careful observation and critical analysis, the best energies of normal educators should be carefully devoted. The knowledge already possessed, though confessedly imperfect, must serve as the basis on which present plans for normal work must rest. On this basis the work may be concisely outlined as follows:

1. It presupposes ordinary school education and culture.

2. It includes a thorough review of grammar-school studies in connection with methods of teaching them.

3. The sciences which treat of mental and physical laws,—that is, the elements of psychology, physiology, and hygiene.

3. Pedagogics; embracing,—

(*a*) Principles of Education, as relating to the body, the intellect, the feelings, and the will.

(*b*) Principles of Instruction.

(*c*) Art of School Management.

(*d*) History of Education.

In general, the practical, applied professional work, the empirical training in the sciences, should come first; the philosophy of education and practice in teaching, last.

The Committee recommend the following general statements:

1. That the amount of academic knowledge to be required of candidates for admission to normal schools must largely depend upon the condition of education in the communities in which those schools are established.

2. That a uniform standard for admission to normal schools is impracticable.

3. That the main work of normal schools should be professional; the academic work, mainly incidental and illustrative.

4. That the professional instruction should be based on a thorough study of man as a physical, intellectual, and moral being.

D. B. HAGAR,
F. L. SOLDAN,
M. S. COOPER,
E. C. HEWETT,
} *Committee on Normal Schools.*

FOREIGN NOTES.

GREAT BRITAIN.—Several important reports, touching different educational interests, have recently been submitted by special commissions. From the report of the Commission upon certified reformatories, industrial schools, etc., it appears that there has been no large increase in the number of inmates of the reformatories since 1864, but the number in the industrial schools has increased ten-fold. The Commission recommend that the educational work of the schools be brought under the supervision of the Education Department. It is estimated that in future each child in land schools will cost 7*s.* 6*d*, per week, and on board training-ships 8*s.* 6*d.*

From a report presented at a recent conference of members of Boards of Guardians, it appears that of 44,000 pauper children of school age in England and Wales, not more than 13,000 are educated in the workhouse. The others are boarded out, or sent to ordinary schools, or placed in schools belonging to the Union, but separate from the workhouse. Whatever plan is adopted, the results are found to depend entirely upon the supervision maintained.

The long-expected report of the Indian Education Commission has been published. As a result of the prolonged investigation, it is declared that a large extension of primary education throughout India is practicable and desirable. It is recommended that assistance be extended to all indigenous schools "that serve any purpose of secular education whatever."

Technical Education.—The demand and the provision for technical education in Great Britain steadily increases. Finsbury Technical College has attracted 700 pupils, 100 attend the South London Technical Art School. The Central Institution at South Kensington is rapidly approaching completion. The sum of £75,000 has been already spent on the building, and the Council has asked the city for £20,000 more, with every prospect of a favorable response. In November last more than 6,000 students were receiving instruction in different branches of technology, with a view to the examinations of the Institute.

Finances of the London School Board.—The report of the Finance Committee of the London School Board gives as the estimate for the year ending March 25, 1885, the sum of £950,804 5*s.*, an increaseof £149,593 16*s* 2*d.*; about 19 per cent. The change in the method of paying teachers' salaries accounts for £60,000 of the increase. Hereafter all teachers are to be paid fixed salaries, with a yearly increase upon good reports until the maximum of the particular grade is reached. The majority of the schools fall in grades three and four, with salaries ranging from £250 to £350. The average salaries for the majority of teachers under the Board will be £300.

SCOTLAND.—The number of pupils matriculated at Edinburgh University during 1883 was 3,396, distributed as follows: Faculty of Arts 1,017,

Divinity 109, Law 502, and Medicine 1,781. The proportion of students on the register who took degrees was: In the Faculty of Arts (including science) 1 in 10, in the Faculty of Divinity 1 in 12, Law 1 in 63, Medicine 1 in 8. During the year £11,500 were added to the permanent endowment funds, of which £10,000 were bequeathed by Miss Dick, of Edinburgh, for the purpose of providing a professorship of Comparative Anatomy or of Surgical Anatomy, as the trustees may prefer. The several departments in the University new building are now occupied. They comprise all the classes in the medical curriculum, excepting those of Botany and of Natural history.

FRANCE.—The experiment of gratuitous, compulsory primary education in France continues to excite the deepest interest. In the discussion of the Education Budget for 1884, in the Chamber of Deputies, a member opposed to the Minister charged great extravagance in building, with the design of rousing popular enthusiasm and exciting the imagination of the common people by the splendor of the provision made for their children. It was stated that between 1878 and 1881 the expenditure for buildings erected or appropriated as school-houses amounted to 202,719,412 francs (upward of $38,500,000), and if the sums required for buildings which it had been decided to construct or adapt were added, it would give a total expense of about nine hundred million francs ($171,000,000). This policy, the speaker declared, was forcing fine buildings upon districts in which it was impossible to maintain schools.

Teachers' Salaries.—In a recent article, Paul Bert has called attention to the pecuniary inducements offered to teachers in the public service. There are, he says, 48,043 (20,658 masters and 27,385 mistresses) whose annual salary is less than 1,000 francs ($190); 22,352 have from 1,000 to 1,300 francs; 5,969 from 1,301 to 1,600 francs; 2,260 from 1,601 to 1,900 francs; 1,364 from 1,901 to 2,200 francs; 786 from 2,201 to 2,600 francs; 579 alone (484 masters and 95 mistresses) receive more than 2,600 francs.

The question of salaries has recently excited much attention throughout Europe. M. E. de Laveleye has estimated the salaries for several countries. In England he finds the average $484, in Scotland $325, in Denmark $400 to $650, but in Jutland not more than $218. In Alsace-Lorraine there has always been a fixed sum ranging from $242 to $310.

SWEDEN.—In Sweden manual instruction is made in reality a part of the system of popular education. In a great number of the normal schools also this instruction is regularly given. A report recently presented to the Belgian Minister of Public Instruction, by H. N. van Kalken, professor in the Normal School of Brussels, contains the following account of the Normal School at Sandscrona: The school is so organized that manual training is given at the same time as instruction in the other branches. Nearly four hundred and twenty-five boys are engaged daily from five to six hours, of

which two hours are spent in manual work. The aim is chiefly to enable the pupil to make simple objects of utility, but some scope is also given to the inventive faculties. An interesting account is given, in the same report, of the school at Nääs conducted in accordance with the views of Salomon, who held that work in wood forms in general the best alternative to the studies which entail bodily inactivity.

Teachers are instructed here upon such favorable terms that they are attracted from all the surrounding countries.

ITALY.—The latest departmental reports issued from the Italian statistical office give a summary of affairs down to the close of 1881, which year completes the second decade from the commencement of the official unification of the kingdom, and the first decade since the absorption of the Papal States and the transfer of the capital to Rome. The progress in education is marked, though the Minister of Instruction is still obliged to report 48 per cent. of the population as illiterate; this is, however, an improvement over 1879, when the proportion was 59 per cent. There is now a Government primary school in nearly every commune, and the attendance is set down at over 2,000,000. The attendance upon higher schools exceeds 36,000. The pupils in the newly-founded art and technical schools, of which there is one in every town of importance, are registered at more than 19,000, and the students in the 26 universities at 12,700. The proportion of students passing creditable examinations is given as above 91 per cent. The number of readers in the public libraries in 1881 was 778,219, and the classified list of books which they consulted reveals a marked preference for scientific studies.

PRUSSIA.—Official statistics represent the total number of children of school age in the kingdom as 5,500,000, of which number 4,800,000 are in the primary schools. On an average there is one teacher for 78 scholars. The province the most favored in this respect is Schleswig, where there is a teacher for 57 scholars, and that least favored is Posen, where there is one teacher for 108 scholars. From 1820 to 1882 the annual expenditure for common schools increased from 7,000,000 to 53,000,000 marks; between 1873 and 1882 the State expended 115,500,000 marks for new buildings, 4,000,000 for pensioning teachers, and 2,000,000 for the use of elementary schools. (A mark = 23.8 cents.)

The Prussian Minister of Instruction, in a circular dated April 10, 1883, called attention to an association which has existed in Munich since 1881, called the Knabenhort. The object of the association is to take charge of poor boys of school age in extra school hours, and occupy them in such a way as to develop their intelligence and sensibilities, and prevent them from running wild. The society is economically managed, and although the subscription-fee is but 25 cents, in two years 100 boys have been cared for. The circular has had the effect of exciting similar efforts elsewhere.